

Transportation

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Railway Age

First —
THE DIESEL
WITCHER

GEARED
To Progress

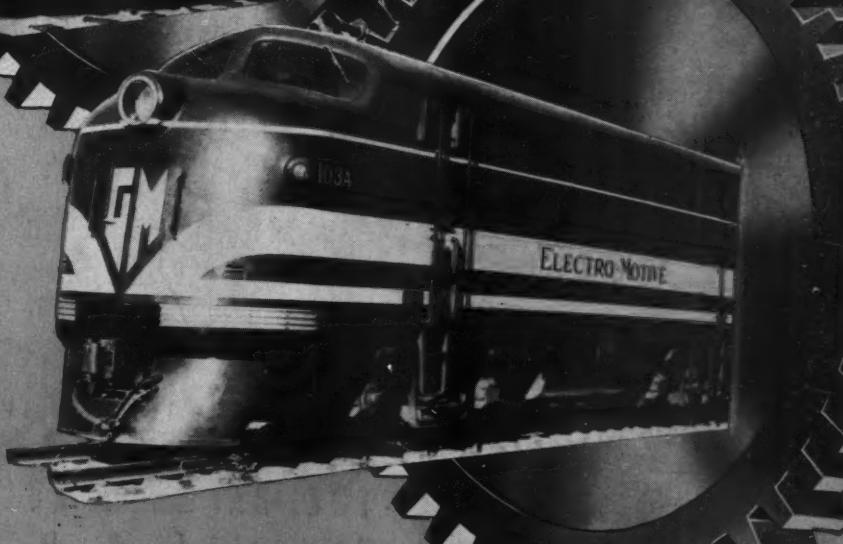
BALTIMORE &
200

Then —
THE DIESEL
PASSENGER
LOCOMOTIVE

Now —
THE DIESEL FREIGHT
LOCOMOTIVE

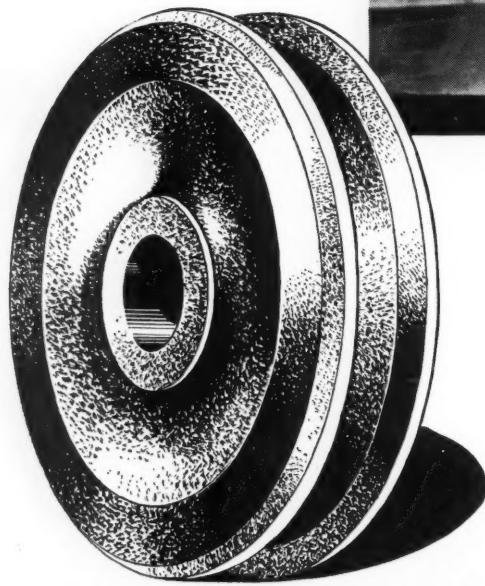
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Plenty Left to R. R. Problem Even If S. 2009 Becomes a Law

The railroads and their employees up until quite recently (but not by the choice of railway managements) have been following the disastrous policy which proved so fatal to France—that of “trying to cover their nakedness with a garment not big enough for them,” to use the words of Wendell Willkie. That is, the leaders of the organized employees have devoted their major energies toward exacting from the railroads higher wages,* hundreds of thousands of dollars of pay for work not done, hundreds of millions of dollars in new pensions and unemployment benefits, costly added comforts for employees (shorter hours for some and, for others, such compulsory amenities as automatic stokers for locomotives). The managements, in turn, have had to devote so much time and energy to cutting and skimping to meet the demands of their organized employees, that “weaving a larger garment” of more traffic and revenues for the industry has often had to take second place in their attention.

Saving Something to Divide

But this losing squabble over the division of less and less—and this detraction of attention from the more important job of making sure that there is going to continue to be something to divide—began about two years ago to show signs of petering out.

Railroad managements in 1937 succumbed to the wage-raising fever which swept through most of industry in that year with John L. Lewis' sit-down drive (also duplicated, like so much of America's recent history, by ill-fated France). In the first six months of 1938, as a consequence of the excesses of 1937, business and railroad traffic declined alarmingly. Railroad net operating income fell to $70\frac{1}{4}$ million dollars, 77 per cent lower than in the same period of the preceding year and the lowest for any similar period since the World War. Labor—at the high rates of pay conceded in 1937, plus the mounting burden of social security taxes—was a terrifically costly item under such circumstances and, in the year from June, 1937, to June, 1938, 256,060 railroad employees were thrown out of work.

That the railroad situation was near the point of desperation was freely conceded, even by politicians not

ordinarily much concerned with the welfare of the nation's transportation system, and railway management was looked to for its recommendations as to what needed to be done—not only to avoid immediate disaster, but to effect some long-range safeguard against the recurrence of such a crisis. Managements quickly made known their views: (1) an immediate reduction of 15 per cent in wages and (2) the enactment of a comprehensive program of transportation legislation which would (again in Mr. Willkie's language) “weave for the railroads a larger garment”—of traffic and revenues, and hence of the wherewithal to pay high wages to their employees and to hire more of them.

Railroads Forsook \$279,000,000 for This Bill

The wage reduction was frowned upon by a “fact finding” board appointed by President Roosevelt as an intermediary in the dispute, which went on to suggest that the railroads would gain more by securing the support of their organized employees in advancing a legislative program which would “weave a larger garment” of traffic and revenues than would be secured through a wage reduction. President Roosevelt supported this view by naming a committee of three railroad executives and three union chiefs (the “Committee-of-Six”), and told them, in substance, to write their own program for transportation legislation and he would see that they got it. The railroads reluctantly consented to withdraw their plan for a wage reduction (which, incidentally would have made their 1939 net operating income 868 million dollars instead of the 589 millions which it actually was—and to equal which a legislative program would have to be pretty far-reaching). Once more then, in 1938, the carriers decided to trust the promise of President Roosevelt to support a fundamental transportation legislative program—which assurance he gave for the first time in his pre-election campaign back in 1932.

The “Committee-of-Six” did its job thoroughly and promptly—and in December, 1938, presented President Roosevelt with a well-documented proposal for transportation legislation which followed in the main the “Railroad Program,” announced by the railroads earlier in the year, except that it omitted the provisions of the “Railroad Program” dealing with labor relations. The program of the Committee-of-Six was endorsed by the

* That is, higher wage *rates*, not higher total payrolls. It is only increased traffic and earnings which can increase payrolls, as has been frequently demonstrated in these pages—most recently in last week's issue.

Association of American Railroads, by all the "standard" railway labor organizations except the Brotherhood of Railroad Trainmen, which under the leadership of A. F. Whitney very seldom co-operates with anybody or anything. This Committee-of-Six program seemed to be a definite turning point in the relations of the railways and their organized employees. In it the railway unions finally gave **recognition to the fact that the welfare of railway employees was largely dependent upon the volume of railway traffic and earnings, and that the unions were henceforth going to try to increase traffic and earnings and not restrict their efforts, as they had done previously, to the vain effort to extract for labor a larger share of diminishing railway revenues.**

Presidential Promises

The hopes that the federal government was at last going to deal realistically and comprehensively with the transportation chaos which its policies had created were, however, soon largely deflated by the lack of enthusiasm of President Roosevelt. Having made promises sufficient to prevent a wage reduction and a threatened strike, he was apparently not willing to exert himself with any great vigor toward giving effect to those promises. The job of preparing transportation legislation was largely left to the House and Senate committees on interstate commerce, with little or no help from the administration. Failing vigorous support from the White House, these committees naturally had to give more consideration to opponents of thoroughgoing legislation than would have otherwise been necessary. They were forced to pare down and compromise, with the result that the bills finally passed by the House and Senate in 1939 were far from the forthright and realistic attack on the nation's chaotic transportation situation presented in the Committee-of-Six report. Only one of the Committee-of-Six recommendations got to the President last year in the form of an Act of Congress (the measure freeing the railroads from the expense of making bridge alterations which are of no benefit to them) and the President promptly vetoed it—indicating the depth of his interest in the program of this committee, which he himself appointed.

Goaded Into Backsliding

Well, after many delays, the conference managers of the Senate and House finally late in April this year ironed out their differences and reported the Transportation Bill to the House. Then came the transportation unions' blitzkrieg. Stung by the criticism of A. F. Whitney—who made political capital among the dumber railroad employees against the new policy of the other union leaders, seeking to promote railroad traffic and earnings rather than futilely to continue trying by "make-work" measures to get a larger share of a diminishing store—the transportation unions suddenly

joined forces with Whitney in his so-called "Harrington amendment." This was apostacy to the discredited "make-work" or alleged "job-saving" theory of unionism—a sort of backsliding not unusual among converts to a nobler way of life. As the Bible observes, the sow that has washed returns to wallowing in the mire.

And so the backsliders, joining forces with forthright opponents of the Wheeler-Lea measure, succeeded in having it recommitted by the House. But the leaders of the numerically-predominant railway unions were *not* backsliders. They really were converts to the belief that a legislative framework which will permit the railways to increase their traffic and earnings is necessary in the interest of railway employees. Apparently most of the members of the transportation unions are also of this belief—because the backsliding union leaders heard plenty "from home" and from their colleagues about the run-out powder they took on this legislation. And so (thanks to Adolf Hitler for keeping Congress in session), the Wheeler-Lea bill has been revived and has now been approved in the House—as it is expected to be in the Senate. Whether President Roosevelt will sign it or not remains an open question, because—although he promised to support the Committee-of-Six recommendations, he did not do so in the case of the so-called "bridge bill," which Congress enacted over his veto.

40 Per Cent of a Loaf

Assuming, however, that the bill is approved by the Senate and the President, what will it do toward correcting the major difficulties of the railroads? Will their troubles, to the extent that they are remediable by fairer governmental treatment, be to any important degree removed? So that our readers may readily answer this question for themselves, we present herewith in convenient tabular form the "planks" in the "Railroad Program" with the major recommendations of the Committee-of-Six ranged alongside—and the provisions of the Wheeler-Lea bill in a parallel column. It will be seen that, out of about 22 "planks" in the "Railroad Program" and the Committee-of-Six report, the Wheeler-Lea bill enacts approximately 9—i. e., about 40 per cent. The bill does nothing toward alleviating the competition to which the railways are subjected from the public treasury—by reason of highways and waterways financed by taxation instead of by charges on the users. This is the very heart of the untenable situation of the railroads, and, since the Wheeler-Lea bill does not deal with it, it cannot be said that the measure goes more than part way toward meeting the exigencies of the transportation situation. On the other hand, the bill **does** recognize the existence of this problem and sets up a board of investigators to study and report on it.

The new bill **does** provide for the regulation of some water carriers, and it redefines the policy of Congress toward transportation in a way to forestall the possible

conclusion of regulatory authorities that Congress intended to favor one agency of transportation over the other. The bill also does away with reduced rates on some classes of transportation service provided for the government. But the measure does nothing toward

putting an end to the Federal Barge Line, toward repealing the long-and-short haul clause, toward ending the Adjustment Board "labor racket," or toward freeing the railroads of discriminatory taxation.

Considering the fact that the Senate and House com-

What the Railroads Asked For

"R. R. PROGRAM," APRIL, 1938

"6 COMMITTEE" REPORT

(1) Blank	(1) New declaration of policy by Congress to provide "fair and impartial regulation of all modes of transportation," to preserve "inherent advantages" of each and insuring a transportation system "adequate to meet the full needs of commerce, of the postal service, and of the national defense."	(1) Same as "Six Report."
(2) Blank	(2) Permanent "transportation board" to be created, to take over some of the functions of I. C. C., but especially to study and report on relative economy of the various modes of transport and extent to which, if any, they are being subsidized.	(2) Temporary "board" called for, to investigate relative economy of competing forms of transport and extent to which, if any, they are subsidized.
(3) Easier terms for loans from R. F. C.	(3) Same as "Railroad Program" plus authority of R. F. C. to lend money to bankrupt roads, equipment loans up to 100 per cent of cost of equipment, rate to be not over 2 per cent.	(3) Restrictions on R. F. C. loans somewhat modified but not as greatly as asked for in "Six Report."
(4) Repeal of reduced rates on government freight under land grant law.	(4) Same as "Railroad Program."	(4) Same as "Railroad Program" with some reservations—among them that reduced rates still apply on war materials and military travel.
(5) I. C. C. regulation of water carriers.	(5) Same as "Railroad Program."	(5) Same as "Railroad Program," but with important exemptions.
(6) Discarding a prescribed plan of consolidation, encouraging consolidations on railroads' own initiative.	(6) Same as "Railroad Program."	(6) Same as "Railroad Program" but with revised "Harrington Amendment."
(7) Freeing railroads from necessity of paying for bridge alterations except to the extent that they may benefit therefrom.	(7) Same as "Railroad Program."	(7) Already provided for in separate bill, enacted over the President's veto.
(8) Granting to railroads right to operate vessels on Great Lakes and inland waterways, as well as motor vehicles on the highways.	(8) Blank	(8) Such operations still strictly limited, but act is amended to give I. C. C. power to authorize some such operations.
(9) Repeal of long-and-short haul clause.	(9) Same as "Railroad Program."	(9) Clause not repealed but made to apply to competing carriers.
(10) Revision of rate-making rule to direct the I. C. C. to consider revenue needs of carriers as "a primary consideration" and to use as a rate base a figure which can be definitely ascertained.	(10) Revision of rate-making rule to sustain a transportation system sufficient at all times to meet the needs of commerce, the postal service and national defense, to attract needed capital and to afford "fair treatment" to investors.	(10) Blank
(11) Government to dispose of Federal Barge Line.	(11) Same as "Railroad Program."	(11) Blank
(12) Curtailment of rate-regulatory power of state commissions.	(12) Same as "Railroad Program."	(12) Blank
(13) Voiding by federal law of state taxes so high as to constitute a "burden on interstate commerce."	(13) Same as "Railroad Program," together with some amendments to income tax law as it affects railroads.	(13) Blank
(14) Tolls on commercial use of inland waterways.	(14) Same as "Railroad Program."	(14) Blank
(15) Provision freeing railroads from cost of grade crossing elimination.	(15) Same as "Railroad Program."	(15) Blank
(16) Changes in "reparation" provisions of the Interstate Commerce law, among them requiring such payments only where claimant has not "passed on" his pecuniary loss to another.	(16) Changes in "reparations" sought, but only those which from time to time have also been recommended by the I. C. C.	(16) Blank
(17) Changing the Railway Labor Act to provide for court review of Adjustment Board decisions.	(17) Blank	(17) Blank
(18) Allowing railroads to deduct from the 3 per cent payroll tax for unemployment relief, the sums they may pay under the "Washington Agreement" as dismissal pay.	(18) Blank	(18) Blank
(19) Amending the Clayton Act to remove requirement for competitive bidding in intercorporate relations of companies in the same transportation system.	(19) Blank	(19) Blank
(20) Eliminating the laws which permit government officials to appear in rate cases as special pleaders for minority economic groups.	(20) Blank	(20) Blank
(21) Blank	(21) Requirement that waterway projects be undertaken only after a finding of "public interest" by an impartial tribunal.	(21) Blank
(22) Blank	(22) Setting up "reorganization court" with some changes in bankruptcy act.	(22) Blank

mittees had to fight for this legislation without any help from the Administration to protect them from pressure groups, the job they have done is most creditable. At the same time, they have shown conclusively that independent and public-spirited Congressmen alone—with the best will in the world—cannot do a really thorough-going job of cleaning up the chaos to which pressure-group politics has brought the transportation industry. Vigorous sponsorship by the Administration is essential if the pressure groups are to be fought off. Those who believe that such leadership will ever be exercised by the present Administration—in view of its record during the past eight years—are more optimistic and trustful than we are.

Without deprecating the Wheeler-Lea bill, therefore

—which comes pretty close to being a miracle, in view of the apathy of the Administration and in the face of the special interests which it had to appease—nevertheless it goes no more than a fraction of the way toward grappling with the real transportation difficulties of this country. Furthermore, we do not believe that these difficulties are ever going to be tackled by the present Administration. A solution of the transportation problem—just like that of the larger problems of the general level of economic activity and defense of this country against military aggression—awaits the relegation of the present New Deal theorists, dilettantes and do-gooders to well-earned retirement, and their replacement by men who know by experience how to make the economic machine function.

Solicitation Practices Need Critical Scrutiny

It is no easy matter for a large organization, such as the traffic (sales) department of a trunk line railroad, to maintain a personal contact with each of its innumerable patrons and prospects that will match the personal contacts maintained by the small trucking companies. Often the owner of the trucking company is in position to, and does, call each shipper and prospect by his first name.

But when many of the large railroad traffic (sales) departments appear to have sufficient forces only to maintain personal contacts with their regular carload shippers, it becomes more understandable why the trucks have been able to alienate the railroad good-will of so many l. c. l. shippers and small shippers of carload traffic. For instance, the head of the freight solicitation department of one of the large trunk line railroads told us recently that his budget permitted him to contact only the more important carload shippers.

He pointed out that his company had recently established a merchandise service between certain large centers superior to that maintained by the trucks but that it was physically impossible for him to contact any appreciable number of the prospective users to tell them about it. He also related that he was never able to contact the interested shippers in any widespread downward readjustment of rates—with the result that the trucks (with their close personal contacts), having met the reduction, would capitalize upon the added attraction of *their* reduced rates! The railroads initiate an aggressive action, but the truckers grab the smoldering pineapple and toss it back into the railroad trench, and let it explode there.

In an article on "Rail and Utility Investments under Public Control," Harvard Business Review, Summer Number 1940, Nelson Lee Smith says:

"Railroad managements, with but few notable exceptions, have been unable to shake off completely the old notion that merchandising, sales promotion and competitive pricing are relatively unimportant."

This is a strong indictment, but what other business is there, besides the railroad business, where the buyer must frequently go to the seller and propagandize him with the idea that it will be profitable for him to furnish the buyer with his service? Not

only this, but frequently the customer must sell the idea to many other railroads, who will not even participate in the business, before the interested railroads will agree to handle it for him.

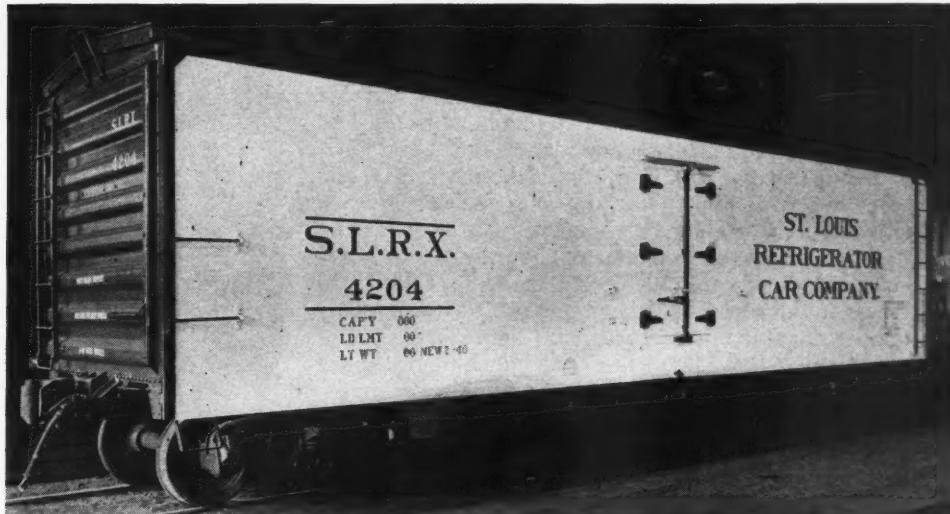
Contrasting with this paucity in solicitation in some phases of railroad traffic, we have most of the larger railroads wearing out the larger shippers with their solicitation. We are told on good authority that the number of freight solicitations made on a certain large manufacturing company is comparable to the number of all other salesmen calling on their purchasing department; that more often than otherwise the solicitation consists of the request for a larger share of their total railroad shipments, and only too seldom is there any claim of a superior or more economical service.

Also in contrast with this neglected area of solicitation, a freight solicitor told us recently that he called on certain large shippers during the early part of the week, his chief came in Wednesday and he called again, then on Friday the chief of a certain department came in and he was compelled again to call, and each call was made purportedly on a fishing expedition for new business, but without anything new or specific to offer. These shippers, of course, were polite.

What can the railroads do to offset the close personal shipper contact by the trucks? Would it be of any value for the head of the sales department for a railroad to know:

1. To what extent and how often are patrons and prospects contacted personally and what is the nature of the contact?
2. To what extent their forces are seeking to regain patrons lost to competitors and what procedure is followed to regain them?
3. To what extent their forces are seeking new business and what procedure is followed to locate it?
4. The total potential business they could reasonably expect to handle and the reasons they are not now handling it?

It is not intended to say that the railroads as a whole are lagging with respect to their solicitation practices, but there is much to indicate the need in many places for more widespread, closer and more systematic contact with all customers and prospects.



One of the 40-ton Refrigerator Cars Built of Super-Harbord Plywood by the St. Louis Refrigerator Car Company

Interesting Construction Used in Plywood Refrigerator Cars

New 40-ton car design saves about 6,000 lb. in weight—Dead air space largely used for insulation—Car interior well drained for special loading

THE St. Louis Refrigerator Car Company has recently constructed at its own shops in St. Louis, Mo., and placed in service twenty-five 40-ton refrigerator cars which embody a number of unique features in design, primarily the use of Super-Harbord plywood in place of conventional tongue-and-groove lumber for floors, lining, roofs, siding, insulation, and in fact, throughout the entire body of the car, except the steel ends. It is estimated that this use of plywood saves 6,124 lb. in light weight per car and reduces the number of linear feet of joints 86.5 per cent, the comparison being made with 70 other comparatively new cars of equivalent capacity, having the same underframe and steel superstructure, but using ordinary tongue-and-groove yellow pine lumber in place of the plywood. The comparative weights and principal dimensions of the two cars are given in one of the tables.

Maximum use is made of the value of dead air space for insulation in all parts of the new cars, including the floors, sides, ends and roofs. While no definite test data are available regarding heat flow through the car walls, the dead air space principle of insulation has been incorporated in St. Louis Refrigerator Car Company cars for a number of years, and is said to have thoroughly demonstrated its practicability and ice economy for the particular service in which these cars are used, namely the shipment of bottle beer and draught beer under ice.

simplicity of bottle beer and draught beer under ice.

On the older cars, two courses of $\frac{3}{8}$ -in. by $5\frac{1}{4}$ -in. shiplap yellow pine are used in the car walls for insulation purposes, with black insulation paper applied to assist in making the construction air tight. On the new plywood cars, the shiplap pine is replaced by relatively large sheets of especially-treated Douglas fir plywood, known as the Super-Harbord grade and supplied to rigid specifications

by the Harbor Plywood Corporation, these large sheets eliminating numerous joints or cracks in the walls, outside sheathing, inside lining, flooring, ceiling, etc. Table II shows a reduction in the number of linear feet of joints from 15,466 in the older cars to 2,098 in the plywood cars, or approximately 86.5 per cent, as stated. Engineers

Table I—Comparison of General Dimensions and Weights of 40-Ton All-Plywood Refrigerator and Equivalent Car Made of Tongue-and-Groove Lumber

	40-ton all- plywood car	Equivalent T. & G. car
Lead-carrying capacity, lb.	80,000	75,000
Load limit, lb.	81,900	75,000
Light weight, lb.	54,100*	61,000
Cubic capacity, cu. ft.	2,416	2,355
Length, inside, ft.-in.	40-1½	40-0
Width, inside, ft.-in.	8-2	8-2
Height, inside, ft.-in.	7-4½	7-2½
Width, extreme overall, ft.-in.	10-2	10-2
Height of side door opening, ft.-in.	6-0	6-0
Width of side door opening, ft.-in.	4-0	4-0
Height rail to top of floor, ft.-in.	4-5	4-6½
Height rail to top of running board, ft.-in.	13-2¼	13-3

* The indicated weight saving of 6,900 lb. in favor of the plywood car includes 776 lb. due to the use of steel wheels, leaving a net reduction of 6,124 lb. credited to the plywood construction.

of the St. Louis Refrigerator Car Company believe that this reduction in the number of joints will make the new cars substantially more efficient from an insulation standpoint than the previous cars, which also have given and are giving satisfactory service.

Not only is the number of linear feet of joints substantially reduced by the plywood construction, but the number of holding nails and screws as well. Reference to Table III shows that the all-plywood car, while requiring 804 more screws than the conventional car, has

4,517 fewer nails, the total number of screws and nails combined being reduced from 19,361 to 15,648, or 3,713 per car. In general, this should prove an advantage due to the increased holding power of the screws and the smaller number of rails which may possibly work out and loosen the construction or damage the lading.

Another feature of special interest about the new car design is the arrangement for draining the car interior so that the special commodity handled may be moved to destination without water damage. The presence of moisture on draught beer during shipment is considered equally as important as the maintenance of a uniformly low temperature, if not more so, and hence this type of load must be well iced with the consequent formation of large amounts of melted ice water and condensed moisture in the car interior. In order to dispose of this water and moisture quickly and effectively, a drain floor is constructed with a slope of $2\frac{1}{2}$ in. from each side to a 4-in. square galvanized gutter at the center, which drains to the track. This permits draught beer, together with the necessary ice, to be handed in the same car with bottle beer shipped in paper cartons and carried on floor racks or supporting surfaces which must be kept dry.

Trucks, Draft Rigging and Brakes

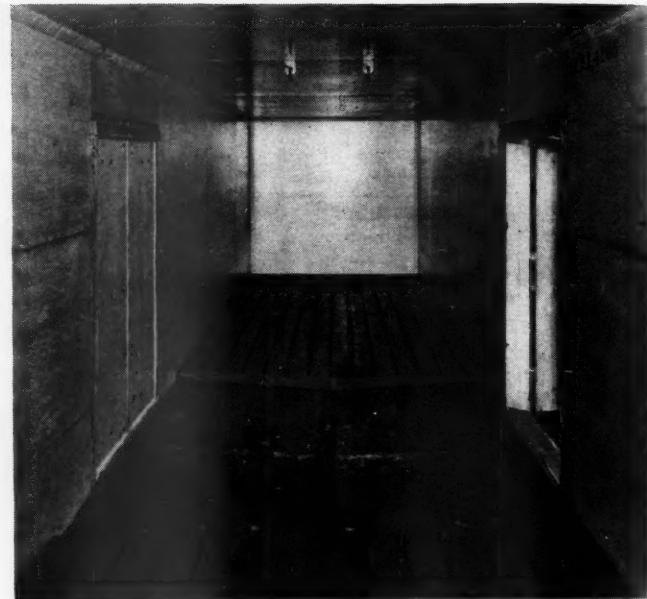
The trucks for these refrigerator cars are 80,000-lb. capacity, spring-plankless, National Type B, with 5-in.

Table II—Comparison of Wood Joints in Two 40-Ton Refrigerator Cars

Items	Linear Feet of Joints		
	Plywood ft.-in.	T. & G. lumber ft.-in.	Reduction in favor of plywood car, per cent
Siding	213-6	2,671-4	92
Lining	280-10	1,517-8	71.5
Ceiling	82-0	1,386-0	94
Roof sheathing	83-2	1,476-0	94.5
Drain (or top) floor	80-10	1,196-4	93.25
Sub floor	93-6	790-6	88.25
Insulation, floor	406-8	2,034-0	80
Insulation, sides	450-10	2,664-1	83
Insulation, ceiling	308-3	1,284-10	76
Insulation, end	96-0	445-4	98
Total	2,098-7	15,466-1	86.5

by 9-in. journals and one-wear wrought steel wheels. They are equipped with drop forged journal wedges, Type-E double coil truck springs with one Cardwell-Westinghouse Type P-8-1 friction spring per side frame, Barber adjustable roller side bearings and other specialties as shown in one of the tables.

The draft rigging consists of Cardwell-Westinghouse Type L-25-SA draft gear, with Universal cast steel ver-



Car Interior With One Section of Floor Racks Removed to Show Sloping Drain Floor and Center Gutter

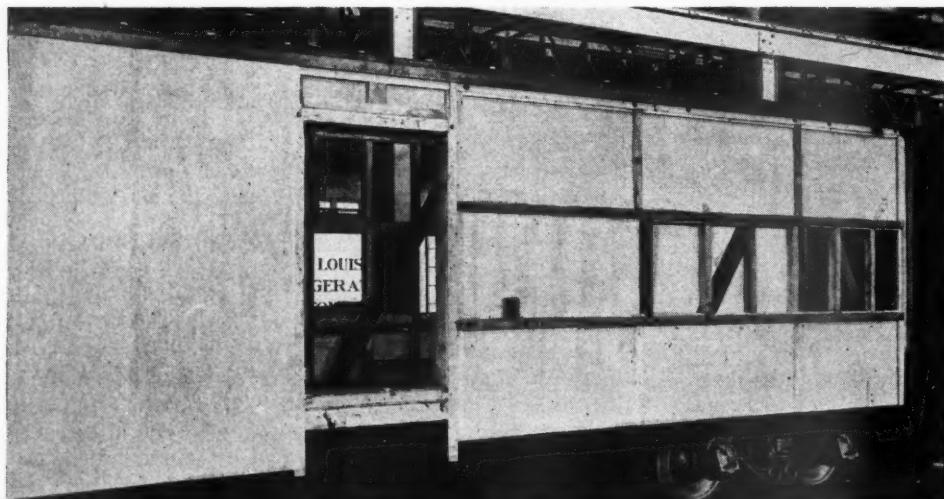
tical-type yoke and 6-in. by $1\frac{1}{2}$ -in. yoke keys secured with A. A. R. retainers; A. A. R. Type-E $6\frac{1}{4}$ -in. by 8-in. rigid-shank, bottom-operating couplers with A. A. R. bottom-lift-type release rigging.

Westinghouse Type AB-10 freight car brakes are installed with Universal Type-XL hand brakes. Extra heavy pipe and pipe fittings are used throughout, with a braking ratio of 50 per cent of the light weight of car.

Steel Frame Construction

The underframe consists of A. A. R. standard Z-section center sills, 36.21 lb. per foot, with A. A. R. cast-steel bolster center fillers and combined rear draft lugs, combined striking castings, coupler carriers and front draft lugs. The side sills are 10-in., 20-lb. rolled channels; body bolsters, A. A. R. standard riveted type, consisting of $\frac{5}{16}$ -in. diaphragms with $\frac{1}{16}$ -in. top and $\frac{1}{2}$ -in. bottom cover plates, with cast-steel side bearing stiffeners; two pressed-steel cross ties made of $\frac{1}{4}$ -in. plate; two pressed-steel cross bearers made of $\frac{5}{16}$ -in. plate with $\frac{3}{8}$ -in. bottom and top cover plates; four $\frac{5}{16}$ -in. pressed-steel center separators; drop-forged coupler wear plates.

The superstructure frame includes Mount Vernon



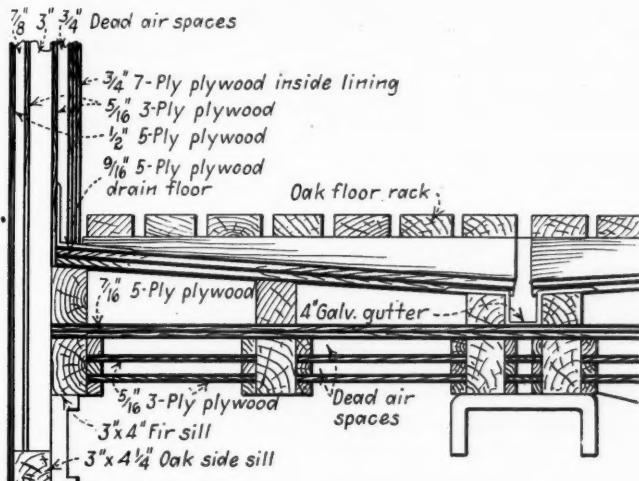
View Showing Application of the Wood Sills, Posts and Plywood Panels to the Steel Frame of the Car

pressed steel ends made of $\frac{1}{4}$ -in. plate, with 6-in. corrugations, $\frac{3}{16}$ -in. steel end plates and $\frac{3}{16}$ -in. steel side flanges. Corner posts are 5-in., 11.6-lb. Zees; bolsters, inter posts and inter post braces are made of $\frac{1}{4}$ -in. pressed steel. End braces are 5-in. by $\frac{1}{4}$ -in. plate; door posts, 3-in., 6.7 lb. Zees; side plates, 5-in., 11.6-lb. rolled Zees, with ten $\frac{1}{4}$ -in. by $2\frac{1}{2}$ -in. by $2\frac{1}{2}$ -in. angle iron carlines clipped to the side plates.

In addition to the steel superstructure, the body of the car is framed with 5-in. by $5\frac{1}{2}$ -in. oak corner posts, 6-in. by $6\frac{1}{4}$ -in. oak door posts, thirty-two 3-in. by 3-in. oak side posts (utilized as fillers to receive insulation and lining), $3\frac{1}{2}$ -in. by $4\frac{1}{4}$ -in. oak side sill, double fir belt rails $4\frac{1}{4}$ -in. by $4\frac{3}{4}$ -in., fir side plates $4\frac{5}{16}$ -in. by $5\frac{1}{4}$ -in., and nineteen $2\frac{1}{4}$ -in. by $11\frac{1}{2}$ -in. fir carlines, ten of which are bolted to steel carline angles.

Car Body Construction—Floor

The general construction of the car body, using Super-Harbord plywood, is perhaps most easily understood by reference to the three diagrammatic part-section drawings which give the plywood thickness and number of



Partial Cross Section Diagram of Car Floor and Side Walls

plies employed at each location, also indicating the number and thicknesses of the various air spaces.

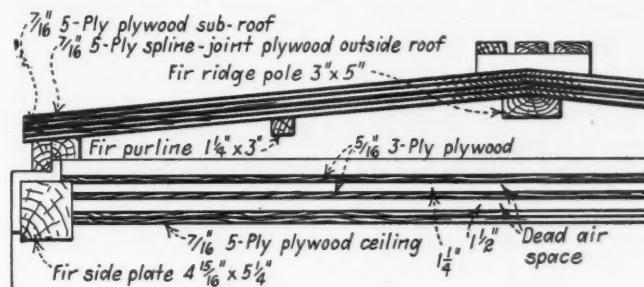
Referring to the partial floor section, it will be seen that, on top of the steel underframe and bolted thereto are six 3-in. by 4-in. fir sills running the entire length of car. Between each pair of sills, a double course of $\frac{5}{16}$ -in. 3-ply plywood is laid in 8-ft. lengths, these two courses of plywood being separated by 1-in. strips, creating 1-in. dead air spaces. On top of sills is laid a $\frac{7}{16}$ -in. 5-ply plywood floor, extending in one continuous piece from side to side of the car and in 4-ft. sheets. Application of this flooring creates a 1-in. dead air space over the top course of plywood sill insulation. Over the plywood floor, bevelled stringers run the entire length of car, these stringers sloping from 4 in. at the side of the car to $1\frac{3}{4}$ in. at the center, thus creating a $2\frac{1}{4}$ -in. slope towards the center of the car to a 4-in. square galvanized iron gutter, from which all water is drained from the car, as stated.

Over these stringers a $\frac{3}{16}$ -in. 5-ply spline-joint plywood floor is laid, sloping in conformity to the stringers and leaving a dead air space of from $1\frac{3}{4}$ in. to 4 in. between the top and bottom floor. Galvanized iron flashing is applied in back of the side lining to a height of 4 in. and extending 4 in. out over the sloping drain floor.

Above the drain floor, the floor racks, consisting of $1\frac{3}{4}$ -in. tapered oak stringers with 1 $\frac{1}{4}$ -in. oak slats, are applied, the stringers being tapered so as to make the floor slats level.

Side Wall and End Construction

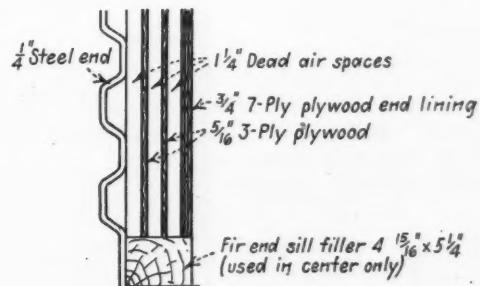
In line with the 3-in. steel posts and braces 3-in. by 3-in. oak posts are set, these posts being flush with both



Partial Cross Section Diagram Showing Roof Construction

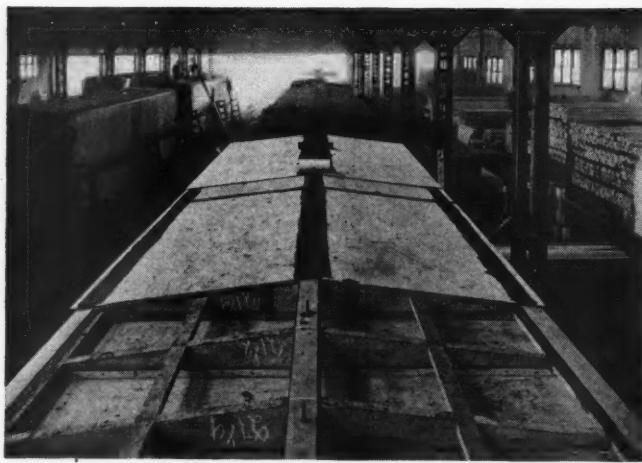
the inside and the outside of the steel posts and braces. On the inside of these oak posts, a course of $\frac{5}{16}$ -in. 3-ply plywood is applied in one-piece vertical strips, extending from floor to side plate. Each strip varies in width from $17\frac{1}{2}$ in. to 45 in., according to the post spacing, in order that a wood post may back each joint. On the inside of this course of plywood $\frac{3}{4}$ -in. battens are nailed at all posts, belt rails, side plates and bottom fillers, thus creating a $\frac{3}{4}$ -in. dead air space after the inside lining is applied. The inside lining is $\frac{3}{4}$ -in. 7-ply plywood, put on in three horizontal strips, 61 in. to $78\frac{1}{2}$ in. long and of varying widths to conform with the post, belt rails, or side plate spacing so that all joints are suitably backed.

On the outside of the oak posts a course of $\frac{5}{16}$ -in. 3-ply plywood is applied, consisting of horizontal strips 33 in. wide with lengths varying from 63 in. to $78\frac{1}{2}$ in. This course of plywood is secured to side posts and belt rails, the belt rails being gained out to receive it. The widths and lengths of this course of plywood again leaves all joints backed by either a post or a belt rail. Application of this course of plywood creates a 3-in. dead air space between the two courses, or the space taken up by the posts and braces. The belt rails, bottom outside oak side sill and top side plate are milled so as to extend $\frac{7}{8}$ in. beyond the outer course of $\frac{5}{16}$ -in. plywood so that



Partial End Section Showing Application of Plywood Panels

when the outside siding is applied a $\frac{7}{8}$ -in. dead air space is created. This outside siding is made of $\frac{1}{2}$ -in. 5-ply sanded plywood, with spline joints, applied in four sheets per half car side and extending in one continuous length from bottom side sill to top side plate, being secured to the sill, two belt rails and the side plate. The side doors



Details of the Roof Construction Clearly Indicated in this View

are constructed the same as the side walls and are equipped with Universal door fixtures and holders.

Referring to the end section drawing, the general construction will be apparent. Against the pressed steel end, four 4-in. by 4½-in. fir posts are secured with riveted stud bolts and between these posts two courses of ½-in. 3-ply plywood, separated by 1¼-in. strips, are applied in continuous sheets from floor to ceiling. The end lining is applied in two horizontal pieces of ¾-in. 7-ply plywood, spline-jointed and secured to the four end posts. This

Table III—Comparison of Nails and Wood Screws Used on Two 40-Ton Refrigerator Cars

Where used	All-plywood car		T. & G. lumber car	
	Nails	Screws	Nails	Screws
Siding	1,080	592	2,292	72
Roof	425	...	1,221	...
Roof sheathing	2,866	...	2,365	...
Lining	585	...	930	...
Ceiling	950	...	2,006	...
Drain (or top) floor	650	...	965	...
Sub floor	380	...	340	...
Floor flashing	1,200	...	1,200	...
Insulation, floor	3,060	...	3,512	...
Insulation, side	310	...	464	...
Insulation, end	450	...	530	...
Door canvas	692	...	692	...
Purlines	152	...	152	...
Floor racks	994	368	1,362	84
Floor stringers	250	...	280	...
Door insulation	200	...	200	...
Running boards	64	i12	64	i12
Belt rails	200	...	200	...
Drain pipe plates	...	16	...	16
Door plates	...	8	...	8
Door holders	...	8	...	8
Threshold plates	...	36	...	36
Totals	14,508	1,140	19,025	336
Grand Total, Screws and Nails..	15,648	...	19,361	...

construction provides for three 1¼-in. dead air spaces, as illustrated. At the bottom of the end lining, a 2-in. by 6-in. oak base board, tapered to conform with the slope of the drain floor, is applied.

Roof Construction

Reference to the partial roof section drawing shows that, on the under side of the wood carlines, a ½-in. 5-ply plywood ceiling is applied. All end joints of the ceiling meet at the carlines and there is a spline joint in the center of the ceiling. On the faces, or sides, of the carlines 1½-in. wood strips are nailed to support a course of ½-in. 3-ply plywood insulation applied between each pair of carlines and extending the entire width of the car, thereby creating a 1½-in. dead air space between ceiling and the first course of ½-in. plywood insulation. Sim-

ilarly, a second course of ½-in. 3-ply plywood insulation is laid, creating another 1¼-in. dead air space. Over this top course of plywood a 1¼-in. bevelled strip is applied against the face of the carlines and on these bevelled strips a bead of Milar's roof packing compound is used to seal in both courses of insulation and assure as nearly as possible an absolutely cinderproof car.

Application of the roof sheathing creates another dead air space, this sheathing consisting of ½-in. 5-ply plywood, applied from the center ridge pole to just beyond the side moulding, varying in lengths from 73 in. to 96 in. so that all joints are backed by carlines or the center

Partial List of Material and Equipment on 25 Forty-Ton St. Louis All-Plywood Refrigerator Cars

Steel parts for underframe and superstructure; steel ends	Mount Vernon Car Mfg. Co., Mount Vernon, Ill.
Plywood	Harbor Plywood Corporation, Hoquiam, Wash.
Body side bearings	Standard Car Truck Company, Chicago
Journal bearings	National Bearing Metals Corp., St. Louis, Mo.
Trucks; box lids	National Malleable & Steel Castings Co., Cleveland, Ohio
Wheels; axles	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
Truck springs	American Locomotive Co., Railway Steel Spring Div., New York
Snubber spring; draft gear..	Cardwell-Westinghouse Co., Chicago
Couplers	National Malleable & Steel Castings Co., Cleveland, Ohio
Uncoupling device	Standard Railway Equipment Co., Hammond, Ind.
Brake beams	Chicago Railway Equipment Co., Chicago
Brake beam supports	Grip Nut Co., Chicago
Brake shoe keys	American Brake Shoe & Foundry Co., New York
Bottom brake connections, brake hangers, and brake hanger wear plates	Schaefer Equipment Company, Pittsburgh, Pa.
Air brakes	Westinghouse Air Brake Company, Wilmerding, Pa.
Hand brakes; door locking device and door holders	Universal Railway Devices Co., Chicago
Body center plates	Pittsburgh Forging Company, Coraopolis, Pa.
Pipe clamps	Central Railway Supply Co., Chicago
Nails	Sherfield Steel Company, Kansas City, Mo.
Recessed-head wood screws ..	Reed & Prince Manufacturing Co., Worcester, Mass.

ridge pole. As an added precaution to cinder-proof the car, beneath each joint of the roof sheathing a strip of rubberoid roof paper, completely covered with roof packing compound, is applied. Over the roof sheathing the ½-in. 5-ply plywood outside roof is applied, also extending in one piece from ridge pole to side of car and in lengths of from 33 in. to 48 in., with a spline joint on the edges and the joints arranged so as to break between roof sheathing joints. All roof lap joints, although splined, are also coated on the under side with roof packing compound. Over the center joint of the outside roof, a 12-in. strip of canvas, covered on both sides with roof packing compound, is applied, and over each saddle bolt, a galvanized iron cap is set in grooves on the saddles, serving to support the 1½-in. by 6½-in. wood running board.

The outside roof is secured with 2-in. hot galvanized recessed-head wood screws and the roof sheathing with cement-coated barbed car nails, the fastenings being at the ridge pole, purlines, side plates, moldings and all carlines. All other plywood is secured with cement-coated barbed car nails, with the exception of the top, or drain floor, and the galvanized iron floor flashing, which are fastened with 2-in. No. 9 galvanized iron Pittsburgh non-leak roofing nails.

THE DIONNE QUINTUPLETS recently appeared in a coast-to-coast radio program sponsored jointly by the Canadian National and the Canadian Pacific. The first sponsored radio appearance of the "Quints," the broadcast was one in a series of the "Canadian Holiday" program which the two railroads make possible.

20,000 Willkie Fans Go by Rail to Elwood Ceremonies

Single-track lines of Pennsylvania and Nickel Plate rise to occasion in spite of handicaps

ALARGE and extremely difficult passenger traffic movement was handled successfully by the Pennsylvania and the New York, Chicago & St. Louis on August 17, when more than 20,000 ardent protagonists of Wendell Willkie were carried on 35 trains to Elwood, Ind., to participate in the ceremonies of notifying the candidate of his nomination for the presidency. Of these trains, 29 were operated on the Pennsylvania and 6 on the Nickel Plate, with arrivals occurring on single-track lines during a period of about 5 hours.

Elwood, a town of 12,000 persons, is located in the farming district in the central part of Indiana, 161 miles from Chicago, and is served by single-track lines of the Pennsylvania and the Nickel Plate. Because of its remoteness from the origins of the pilgrimage and the character of the railroad facilities serving it, exacting plans were prepared by these railroads to handle this large volume of traffic in a limited period. Since this movement occurred while much passenger equipment was still assigned to the handling of troops to summer maneuver camps, the car situation added another problem.

Pennsylvania Devised Unusual Plan

The Pennsylvania's task was particularly difficult because the major part of its operations was on single track lines extending from Logansport to Elwood and from Richmond to Elwood. Existing facilities on the mul-

south, and unload them on a single track line, store 330 cars and 29 locomotives upon arrival, then service them, and later, spot, reload and dispatch the trains after the ceremonies. To simplify this task, the 15 trains from Chicago, Marion, Ohio, Ft. Wayne, Ind., South Bend and Whiting were unloaded and reloaded at a temporary station at Ninth street. The 14 trains from New York, Harrisburg, Pa., Pittsburgh, Columbus, Ohio, Akron, Cleveland, Cincinnati, Urbana, Ind., Indianapolis, Rushville and Louisville, Ky., were routed through Richmond, and used the regular Elwood station at Sixteenth street. With this plan of operation, the 15 trains from the north could be moved, as soon as they were unloaded, to industrial and side tracks north of Elwood, while industrial and side tracks in south Elwood could be used for storing the 14 trains from the east and south.

The eight trains from Chicago departed at intervals of 20 min., between 6:40 a. m. and 9:45 a. m. on a schedule of 3 hr. 50 min. for the 161 miles, and arrived at Elwood after trains from other northern points. As a result, 15 trains were scheduled over the 45 miles of single-track line from Logansport to Elwood during the period from 6:45 a. m. to 12 noon. The 14 trains from the east and south were scheduled over the 63 miles of single-track line from Richmond to Elwood between 5:30 a. m. and 12 noon, with a running time of 1 hr. 35 min. and a headway of 20 min. Of these trains, 11 also operated over the single-track line between Springfield and New Paris. This schedule of the trains from Chicago, however, was interrupted by a pedestrian "throwing himself" under the wheels of a locomotive and delaying the third train 15 min. in Chicago.

To make possible the operation of incoming trains on a 20-min. headway and departing trains on a 10-min. headway, all regular freight and passenger trains were rerouted. A train dispatcher's office was established at the Elwood freight house to handle the line between Richmond and Logansport, and 38 extra operators were provided. Twenty-three block stations were in operation, including 12 established stations operating semaphore signals, and 11 temporary stations with position-light signals. With this arrangement, the lengths of the manual blocks were reduced from 15 miles to 5 miles. At the same time, protection was provided at 185 grade crossings, either by flashing-light signals or watchmen or both. In the Chicago terminal area, all crossings between River Branch Junction and Shererville were given added protection by watchmen. Track patrols operated over the lines north and south of Elwood.

The problem of operating locomotives in the absence of turning facilities at Elwood was overcome by reassigning locomotives after arrival. Those from the north were assigned to outbound trains to the east and south, and those from the east and south were assigned to outbound trains to the north. After the movement, the locomotives were returned to their divisions.

In order to avoid the construction of water and coal facilities at Elwood, those locomotives operating from

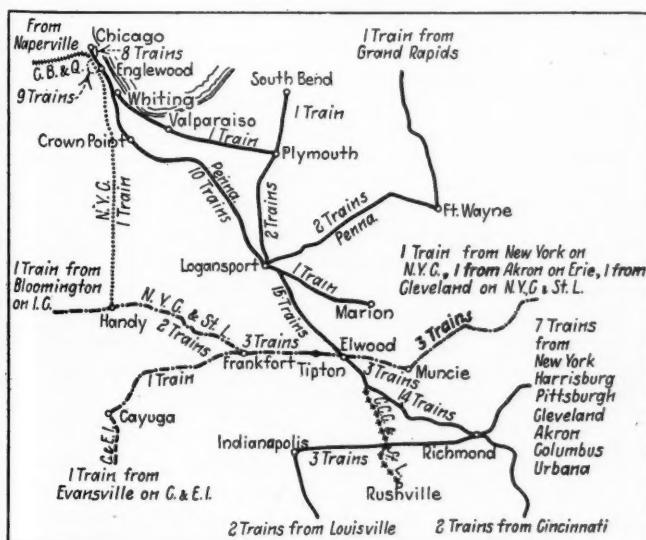
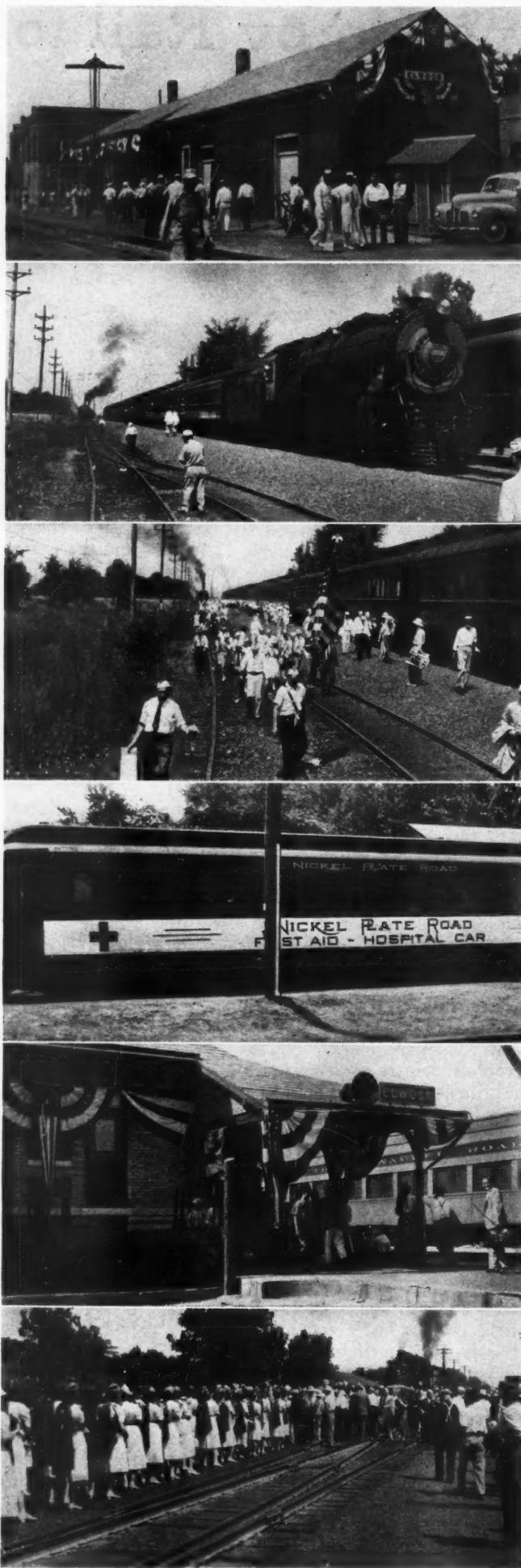


Chart Showing How Traffic Was Handled

multiple track lines beyond these junction points were capable of handling the traffic. Its problem was to operate 15 trains from the north and 14 trains from the east and



the north were scheduled to coal to capacity at Sandy Hook, Ind., and to take water at Logansport, while those coming from the east and south took coal and water at Dow, Ind. Emergency water and coal facilities were also established at Elwood. On the return trip, these same points were used for taking water and coal. Enginehouse and car inspection forces were set up at Elwood. To guard against delay from locomotive failures, protecting locomotives were stationed at Hartsdale, Ind., Sandy Hook, Logansport, Kokomo, Anderson and Richmond.

All cars were iced and watered to capacity on the going and return trips at Logansport and Richmond, where pipe lines and icing facilities were installed. Emergency icing was done at Elwood.

All coaches and Pullman equipment was cleaned at Elwood during the layover, and each train was accompanied by two car cleaners.

In addition to these measures, other facilities were installed to handle the traffic. Cinder platforms, a station house, fences and gates were built at Ninth street. Telephone lines and public address systems were installed at both stations, and 37 uniformed and 4 plain clothes officers patrolled the terminal. A doctor at Ninth street, and a doctor and hospital car at Elwood, provided first aid for the passengers and the public.

Nickel Plate Handles Six Trains

The Nickel Plate operated six special trains, three from the east and three from the west. These included one from New York which was delivered by the New York Central at Cleveland, one from Akron which was delivered by the Erie at Cleveland, one from Cleveland, one from Chicago which was delivered by the New York Central at Handy, Ind., one from Bloomington delivered by the Illinois Central at Handy, and one from Evansville delivered by the Chicago & Eastern Illinois at Frankfort. In addition, the Nickel Plate handled other traffic on regular trains, setting out the cars at Elwood.

Plans for the operation of these trains provided for the routing of all regular passenger and freight trains around Elwood on the seventeenth. Trains from the east were unloaded east and those from the west, west of the Pennsylvania crossing in Elwood to avoid holding loaded trains when the crossing was used by the Pennsylvania. For this operation, the manual block system was employed on the line serving Elwood, with extra block stations and operators to reduce the interval to one mile on the line west and $1\frac{1}{4}$ miles on the line east of Elwood.

After unloading, trains were stored on a side track at Elwood, and locomotives were turned, watered and coaled at Tipton. Cars were watered and iced at Elwood, Tipton and Muncie, where temporary facilities were installed. A telephone system of six phones was installed along the tracks at Elwood to direct the movement of trains, and a loud-speaker system and flood lights were erected to aid in the loading and unloading of trains. Maintenance, mechanical and locomotive forces were stationed at Elwood, as were a first-aid car with doctors and nurses.

- (1) The Nickel Plate Station Was Used by Trains from the West. (2) and (3) Fifteen Trains Unloaded at the Pennsylvania's Ninth Street Facilities. (4) A Hospital Car Was Provided by Each Railroad. (5) The Pennsylvania Station Accommodated Trains from the South. (6) A Band Greeted a Nickel Plate Train from the East

These Concrete Retaining Walls Embody Novel Features

Cantilever-type units built on Erie are supported partly on old walls and partly on piles

THE incorporation of existing buried masonry walls in the foundations for new walls that were superimposed over the old structures comprises one of the unusual features of a project recently carried out on the Erie, which involved the replacement of a four-track timber-frame trestle with an earth embankment held between concrete retaining walls. Among other noteworthy features of this project may be mentioned the design of the walls, which was influenced not only by the foundation conditions but also by the necessity for constructing the footings and walls without disturbing the frame bents, and the methods that were employed for anchoring abutments and back walls for street bridges at the ends of the new fill.

Location and History

This project is located in Jersey City, N. J., a short distance west of the Erie's passenger station and terminal on the west bank of the Hudson river. Paralleling the river several miles to the west is a high ridge, known as Bergen Hill, which is pierced by a double-track tunnel that carries the Erie's main freight tracks. Years ago passenger as well as freight business was handled through this tunnel. Originally the tracks crossed intersecting streets at grade between the station and the tunnel but in 1898 the grades were separated by elevating the tracks on an embankment held between retaining walls. At the time the grades were separated it was contemplated that at a later date the passenger tracks would be further elevated on a viaduct to bring them up to the level of a cut that it was planned to construct through Bergen Hill, and to serve as footings for the proposed viaduct two parallel masonry walls of substantial cross section were constructed and then covered over by the new embankment.

About ten years after the completion of the grade separation project the plans for constructing the cut and the approach viaduct were carried out, both the cut and the viaduct being designed to carry four tracks. Since that time passenger business has been handled through the cut, while freight trains have continued to use the



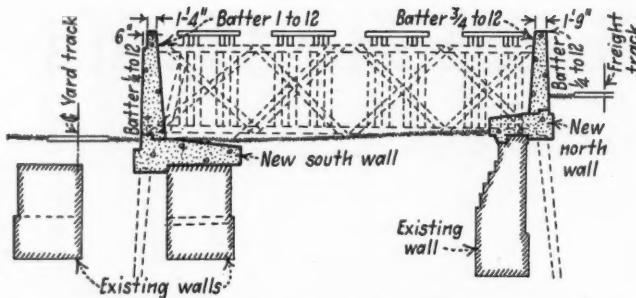
A View of the New Retaining Wall Built on the South Side of the Tracks, Looking Toward the East

tunnel. For much of its length the approach viaduct is of steel construction but for a short distance at its extreme easterly end it consisted of a framed timber trestle. The masonry footing walls that were constructed in 1898 were not utilized in the construction of the viaduct.

The principal part of the frame trestle section of the viaduct extended between Jersey avenue (on the east) and Coles street, a distance of about 390 ft., and was superimposed on the original fill. Directly under the northerly side of the trestle was located the northerly retaining wall which, subsequent to its construction, had been entirely buried by the placing of a fill along its face. Under the southerly side of the trestle was located one of the masonry substructure walls that had been constructed in 1898. These walls were, of course, entirely buried in the fill. The embankment on the north side of the trestle carries several freight tracks, while that on the south side carries a number of yard and thoroughfare tracks.

The several tracks extend across Jersey avenue and Coles street at the different levels on steel bridge spans. The bridges carrying the four passenger tracks and the low-level tracks on the south side are supported on masonry abutments at the street lines. However, the street bridges to the north of the passenger tracks have pile-trestle approaches which are of such length that the toe of the embankment in each case falls at or near the sidewalk line. Hence, it is apparent that short lengths of the old northerly retaining wall were partially exposed to view at both Jersey avenue and Coles street.

The frame trestle carrying the four passenger tracks



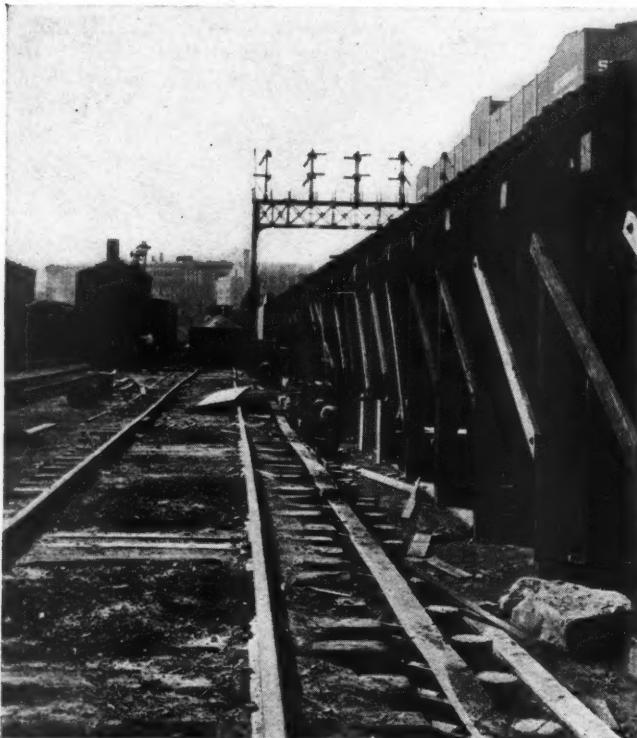
Cross-Section Through the New Retaining Walls, Showing How They Are Partially Supported by the Old Walls

was of conventional construction, embodying bents placed on 12-ft. centers, which were supported in the fill on timber sills. Because of its age and for other reasons, this trestle had become expensive to maintain, and it was decided several years ago to replace it with an earth fill held between concrete retaining walls.

New Walls Founded on Old Masonry

Because of their obvious advantages for such locations, walls of the cantilever type were chosen for this installation. Since the new wall along the northerly side of the trestle is located directly over the old retaining wall and that on the south side is placed directly over the buried substructure wall, it was only logical that the old masonry should be incorporated in the foundations of the new walls and in both cases the footings of the latter rest directly on the tops of the old structures.

However, because the toes of the new walls overhang the faces of the old masonry by varying amounts in both cases, it was necessary to employ supplementary means of support at these points, this support consisting of a single row of concrete piles under the toe of each new wall, the individual piles ranging in length from 25 ft.



Looking West Along the South Side of the Frame Trestle, With the Concrete Train in Background. Note Tops of Bearing Piles for the New Wall and Top of Old Wall Under Bents

to 35 ft. These piles, which are driven on a slight batter to aid in restraining the walls against outward movement, embody steel shells filled with cast-in-place concrete. These shells are of the fluted type and are tapered, the small end being fitted in each case with a welded steel tip.

Because of differences in the elevations and dimensions of the tops of the old walls, the new walls are not identical as to their height and the width and cross sections of their base slabs. The old wall under the northerly side of the trestle is somewhat higher than that on the other side; hence, since the tops of the new walls are at the same elevation, that on the northerly side is not as high as the other. Specifically, while the height of the southerly retaining wall, measured from the top of the existing wall, varies from 16 ft. at Jersey avenue to 21 ft. at Coles street (the track grade being 1.2 per cent), the height of the northerly wall is about 11 ft. at Jersey avenue and increases to about 17 ft. at Coles street.

The top of the old wall along the southerly side of the project varies from 8 to 9.5 ft. in width, while the width of the new wall footing ranges from about 9 ft. 6 in. at the east or low end of the wall to 16 ft. at the other end. Thus, the extent to which the footing rests on the existing masonry varies from point to point along the wall; for a considerable distance at the east end of the project the footing does not extend all the way across the top of the old wall, while elsewhere it overhangs the inside face of the old wall for distances ranging from 4 ft. to 6 ft. 6 in.

On the northerly side of the tracks, the top of the old wall is 3 ft. wide, while the footing of the new wall varies in width from 8 ft. 6 in. to 10 ft. Here the heel of the new wall footing overhangs the rear face of the old wall for distances varying from 2 ft. to 3 ft. 6 in., and on the underside of the overhang a longitudinal lug is provided, which extends down to a shelf in the old wall 1 ft. below its top surface. Thus a key is provided which acts as a means of helping the wall to resist thrust in the outward direction.

This key was considered necessary because of the narrow width of the old footing, which resulted in only a limited amount of frictional resistance between the old masonry and the bottom of the new wall footing. Because of the greater width of the other old retaining wall and the natural keying effect provided by irregularities in its upper surface, it was considered unnecessary to incorporate a key in the footing of the new wall on the south side of the trestle.

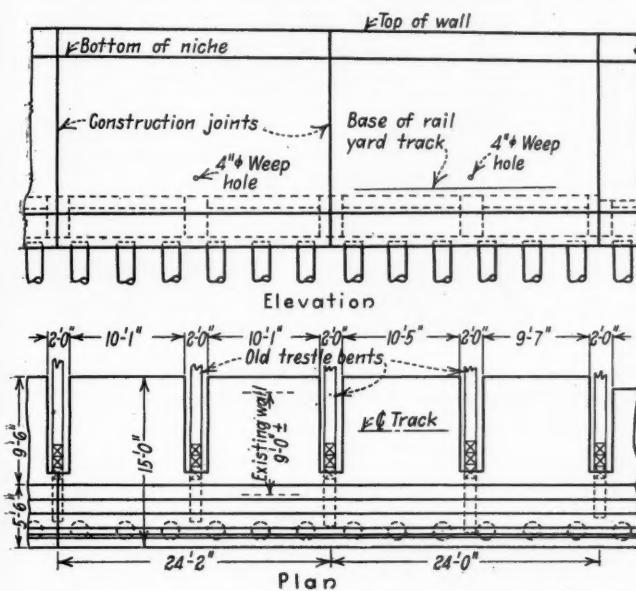
The new walls are built with a batter of $1/4 : 12$ on the outside faces, while on the back faces the batter is $1 : 12$ for the south wall and $3/4 : 12$ for the north wall. The latter wall is 1 ft. 9 in. wide at the top, but the width of the south wall at the top is reduced to 1 ft. 4 in. by a niche in the outside face, 6 in. wide and 2 ft. 6 in. deep, which was provided for carrying signal cables. At both ends of the northerly wall, where the old masonry was exposed under the approach trestles, the overhanging toe of the new wall footing was extended down as necessary on a stepped slope corresponding with the embankment slope to conceal the face of the old wall and to avoid exposing the foundation piles.

Footings Recessed for Bents

To permit the construction of the retaining walls without unduly disturbing the trestle, the footings of the new walls were designed with mortise-like recesses to receive the frame bents. These recesses are 2 ft. in width and of varying lengths, depending on the width of the

footings and other conditions at the different bents. By designing the footings in this manner, it was possible to construct them without removing the bents, the only work required on the latter in preparation for constructing the walls being the resetting of the outside posts and the cutting back of the caps and sills to provide the necessary clearance. At alternate recesses in the footings, keyed construction joints were provided in each wall, these joints being generally about 24 ft. apart.

When the four passenger tracks were raised on the viaduct in 1910, the height of the abutment at Coles street was increased the necessary amount by means of a reinforced concrete extension, to provide a bridge seat for the street spans at the higher level. Also a back wall was provided above the new bridge seat, on which



Plan and Elevation of a Typical Section of the Southerly Retaining Wall

were supported the ends of the stringers of the adjacent span in the trestle. At Jersey avenue, however, where the raise in the grade that was made in 1910 was considerably less than at Coles street, the end of the street span is supported on steel columns superimposed on the bridge seat of the existing abutment, and no back wall was provided. Hence, at this end of the project it was necessary, as a part of the recent undertaking, to provide a means of restraining the new fill above the abutment, and to this end a concrete back wall was superimposed on the old abutment, the steel columns being left in position for carrying the ends of the steel spans.

End Walls Are Anchored

At both Jersey avenue and Coles street it was desired to protect the existing abutment walls against the additional surcharge imposed by the new fill and also to provide means for causing each abutment and the adjacent ends of the retaining walls to act as a unit. To serve these ends, a transverse anchor or "deadman" was placed at the footing level some distance back from each abutment, with a series of ties extending to the latter and with several transverse ties being placed in the space between the anchor and the abutment. At Jersey avenue the deadman is 30 ft. from the abutment while the corresponding distance at Coles street is 33 ft. 6 in.

In each case the anchor consists of a second-hand plate girder from a bridge span, complete with flange

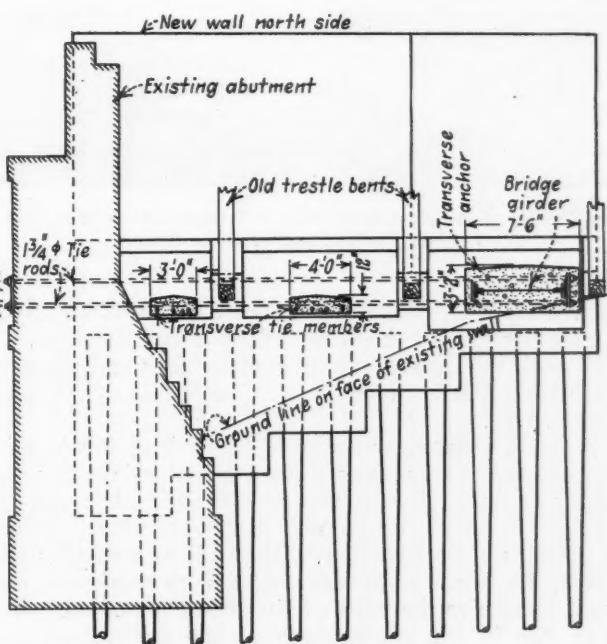
angles, cover plates and stiffener angles, which was placed in a position at right angles to the tracks, with the web in a horizontal plane and with the ends embedded in the retaining wall footings. Both girders are encased in concrete and, to facilitate the placing of the encasement, three lines of 6-in. holes were cut in the web of each girder, the holes in each line being spaced 3 ft. apart.

At Coles street there are eight evenly-spaced tie members, by means of which the abutment wall is anchored to the girder. These ties consist in each case of two 1 3/4-in. rods which extend entirely through the abutment in drilled holes, the protruding ends on the outside face of the abutment being fitted with nuts and washers from which pressure is transmitted to the masonry by a metal plate. At their opposite ends, the rods in each tie extend to the rear face of the plate girder, one being above and the other below this member, where they extend through a yoke plate. These ends of the tie rods are, of course, embedded in the concrete encasing the girder, and throughout their lengths the rods are likewise covered with concrete, the encasement for each pair being 9 in. by 2 ft. 6 in. in cross section.

Transverse Ties

In the space between the anchor and the abutment at Coles street two transverse ties are provided which are of reinforced concrete poured integrally with the abutment wall footings. In each of these ties the reinforcement consists of 1 1/4-in. square rods which extend well into the retaining wall footings. One of the transverse ties, that nearest the anchor, is 10 in. by 4 ft. in cross section and contains four rods, while the other is 10 in. by 3 ft. in section and embodies three rods, the long dimensions being horizontal in each case. As to elevation, the transverse ties are so placed at a level slightly below that of the longitudinal ties that these members overlap each other at their points of intersection and at such points they are cast integrally with each other.

At Jersey avenue the method of anchoring the abutment wall differs in a number of details from that employed at Coles street. Here there are only four longitudinal ties, each of which consists of four 1 1/4-in. rods



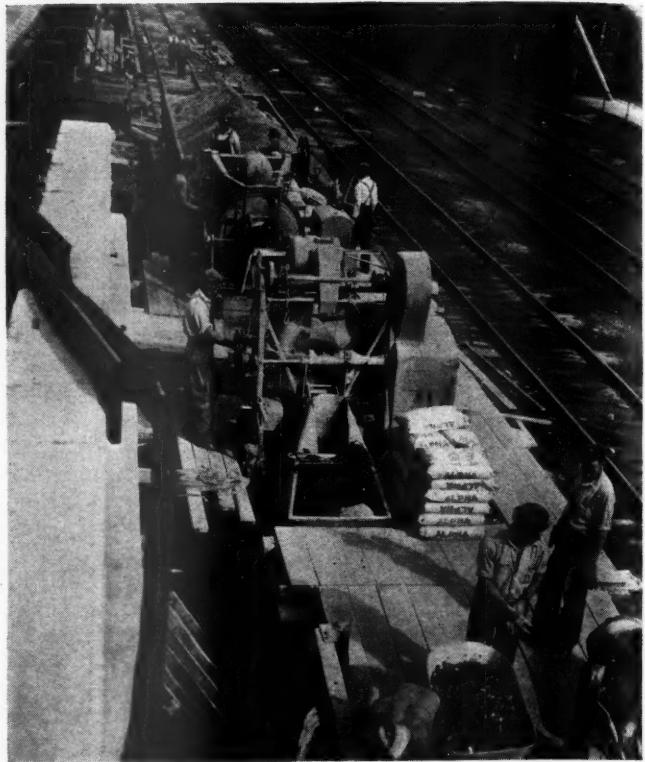
Section Through the Existing Abutment at Coles Street, Looking North, Showing the Wall Anchorage System

arranged in a square and encased in concrete. As at Coles street, these rods are fastened at one end to the deadman, but at the other end they are embedded in the footing of the new wall that was superimposed over the old abutment, this wall being of cantilever construction with the footing keyed into the rear face of the existing abutment. Two transverse ties are also provided at this location, which are substantially similar to those at Coles street.

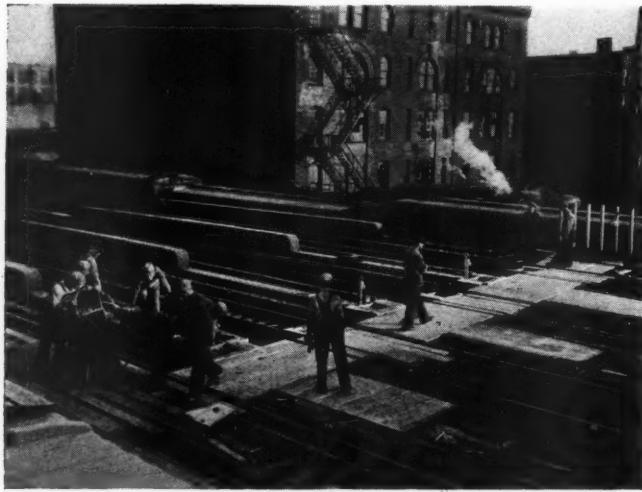
All concrete placed on this project was mixed on a concrete train embodying two $\frac{1}{6}$ -yd. mixers. When pouring the footings, this train operated from the low-level tracks adjacent to the walls, but for placing concrete in the walls proper it operated from the outside tracks on the viaduct. Because of traffic conditions, the latter phase of the work was carried on at night. The concrete placed on this job embodied a $1 : 2\frac{1}{4} : 3\frac{1}{2}$ mix (dry rodded), with $5\frac{1}{2}$ -gal. of water for each sack of cement. To enhance its workability, an admixture was used and, in addition, the concrete was consolidated with internal vibrators. Plywood forms were employed and a damp-proofing treatment was applied to the rear faces of all walls, the top surfaces of the footings and at other points where it was deemed necessary.

Most Difficult Operation

Probably the most difficult phase of the concreting operations was that involved in placing the new back wall on the Jersey avenue abutment. At this point the end bent in the trestle was supported on the bridge seat and, as one of the preliminary steps in constructing the



The Concreting Operation During the Placing of the Footing for the South Wall, as Seen From Top of Completed Section of Wall



The Placing of the New Back Wall at Jersey Avenue Was One of the Most Difficult Phases of the Project

back wall, it was necessary to shift this bent slightly to the east or toward the street to get it into the clear. In this work the bents were cut into sections and the posts were placed in between the steel columns carrying the street spans.

Since the passenger tracks of the Erie at this location carry a heavy commuter traffic as well as regular passenger business, it was not possible to "kill" even one of them for any considerable length of time. Hence, to permit the construction of the wall as a whole under traffic, the forms were constructed with notches at each track to receive the ends of the trestle stringers. As a final step in the construction of the wall, these gaps were filled under traffic with high-early-strength concrete. For pouring the concrete in this wall, the train

was spotted on the adjacent freight track at Jersey avenue at a point where the floor of the flat car containing the mixer was about even with the higher track level. The concrete was placed with two-wheel hoppers operating on platforms and walkways at the track level.

In arranging for drainage, advantage was taken of the presence of existing catch basins behind the existing walls. There are four such catch basins behind each of the old walls and at each of these locations a backing of loose stone, 10 ft. wide and 1 ft. thick, was placed against the rear faces of the new retaining walls and the upper surfaces of the footings. Also three similar stone drains were placed behind the new back wall at Jersey avenue, these basins feeding into a 6-in. corrugated pipe placed transversely at the base of the wall.

This project was first undertaken in the fall of 1938, and at that time all of the northerly retaining wall and 79 ft. of the southerly wall at the west end were built, the work then being suspended. The remainder of the south wall and the back wall at Jersey avenue were built during the fall of 1939. In the latter phase of the project the concreting operations were started on August 28, and, since it was desired to finish the job before the onset of cold weather, the work was expedited with all possible speed, being completed on October 21. During this period 1,163 cu. yd. of concrete were poured with the two $\frac{1}{6}$ -yd. mixers. Following completion of the retaining walls, the fill was placed with bottom-dump cars. Except for the stringers, which were removed, the frame bents were left in position.

As part of this general project a relatively short section of frame trestle at the extreme lower end of the ramp grade immediately east of Jersey avenue was also replaced with a fill. This phase of the work also involved the construction of retaining walls but they are much lower and shorter than those west of Jersey avenue.

The design and construction of the new retaining

walls was carried out under the general direction of G. S. Fanning, chief engineer of the Erie, with the design supervised directly by F. A. Howard, engineer of structures, and the construction work by I. H. Schram, engineer maintenance of way of the Eastern district, at Jersey City, and F. C. Kronauer, division engineer of the Terminal division (now chief engineer of the New York, Susquehanna & Western). All the construction work on the walls between Jersey avenue and Coles street was done by company forces.

Railroad Construction Indices for 1939

WASHINGTON, D. C.

THE Engineering Section of the Interstate Commerce Commission's Bureau of Valuation has issued its Railroad Construction Indices for 1939, showing that last year the cost of railroad-building was exactly the same as for the preceding year. Based as usual on the 1910-1914 costs as 100, the 1939 index for the country as a whole was 149—down four points from 1937's 153, but still up 16 points from the 1933 post-war low of 133. The peak was reached in 1920 when the index stood at 226.

In an accompanying notice I. C. C. Secretary W. P. Bartel pointed out that the indices are "unique in that while other construction indices generally limit their coverage to a few items, or types, or localities, these cover the costs of thousands of items of construction and construction costs in an industry that penetrates all

parts of the country and draws on all types of material and labor." They record, he points out, the relationships to the base and indicate trends, and have been developed over a period of 30 years as the 1914 base incorporates consideration given to prices prevailing in the period 1909-1914 and corrected for conditions reaching back to the beginning of the century.

Indices Indicate Trends

Furthermore, the compilation's "General Notes" point out that the indices "represent territorial index factors and are of value in indicating trends. They are not necessarily applicable for use in the determination of reproduction costs upon individual railroads. . . ." The general indices for the country as a whole (given in the accompanying tabulation) are broken down in the Bureau's compilation into eight regional sets.

In his notice Mr. Bartel called attention to the fact that for the country as a whole, the 38 composite roadway accounts, including engineering, but excluding lands and rights of way, stood at 137 in 1939, a slight drop from the preceding year, and from 142 in 1937. The peak of these accounts, which cover approximately 73 per cent of the total cost, excluding lands and rights, was reached in 1920 when it stood at 214, and the valley was reached with 127 in 1933.

The indices reveal, he said, a decided drop in the cost of Account 3—Grading. Grading shot up from a base of 100 in 1914 to 250 in 1920. The displacement of men and mules by machines and the improvement of those machines has been reflected by a precipitate falling in grading costs until 1934 when the index was back to 100; in 1939 it dropped to 90, or 10 points lower

REGIONS I TO VIII, INCLUSIVE

Tabulation of Indices by Years and by Accounts
Applicable to the Entire United States

Acct.	*Per Cent	1915	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	
ROAD																											
1	2.83	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	
3	18.19	100	110	130	165	190	250	170	143	160	164	149	153	143	135	133	123	118	106	98	100	101	99	103	93	90	
4																											
5	1.51	103	109	128	150	183	208	179	165	179	179	179	178	169	155	155	143	130	119	111	122	120	130	139	141	140	
6	9.41	105	111	146	162	178	206	165	160	176	173	171	170	168	164	163	150	134	122	122	136	135	141	155	150	149	
7	0.04	102	124	169	177	184	210	150	153	173	171	168	165	163	163	162	154	144	129	122	136	136	137	158	150	149	
8	5.58	100	100	112	133	170	201	189	157	177	175	172	173	175	176	175	170	155	144	139	149	147	150	159	154	158	
9	8.57	101	106	121	148	152	168	158	144	145	145	144	144	144	144	144	144	140	134	123	123	124	143	139	136		
10	3.39	99	129	198	210	203	209	192	161	182	179	177	177	177	177	177	170	169	165	163	158	150	147	150	169	170	
11	4.09	103	107	114	140	150	207	191	176	175	175	174	175	176	176	176	168	159	146	146	141	139	140	143	143	143	
12	4.35	100	100	130	163	175	218	174	165	188	188	188	188	188	188	188	188	182	175	164	157	159	165	169	167	165	
13	0.51	100	122	142	178	194	204	189	177	179	179	176	175	175	175	173	171	164	147	135	140	140	140	138	143	144	139
14	0.08	103	108	119	165	199	280	197	194	212	200	201	201	204	204	204	198	188	125	126	140	140	140	155	155	155	
15	1.18	104	108	137	161	182	208	171	164	178	175	171	169	166	165	165	161	153	131	127	139	137	139	152	145	142	
16	4.42	101	115	135	154	185	215	192	180	194	193	188	184	189	188	187	182	165	141	145	151	151	157	166	166	166	
17	0.51	100	115	136	156	185	216	192	178	196	196	189	187	192	191	190	186	166	140	145	150	150	150	162	162	162	
18	0.82	101	120	159	170	191	213	185	178	187	187	186	182	185	186	184	177	161	147	151	155	155	166	166	166	166	
19	0.26	101	153	160	190	212	218	181	166	185	185	182	180	183	183	183	174	159	144	149	154	154	153	159	159	159	
20	2.16	102	118	141	159	188	216	191	180	193	192	188	185	189	188	187	176	161	137	142	147	147	155	165	165	165	
21	0.09	100	110	128	150	185	214	190	184	197	197	193	190	195	193	193	182	165	137	142	147	147	156	164	164	164	
22	0.04	100	115	135	155	185	210	193	178	198	198	193	189	193	191	191	184	165	137	142	147	147	154	166	166	166	
23	0.53	100	114	133	152	178	204	167	158	175	175	174	177	178	178	178	172	158	136	141	146	146	149	153	153	153	
24	0.44	101	117	145	155	184	204	170	159	176	176	174	174	176	176	176	172	157	136	142	147	147	151	153	153	153	
25	0.01	108	122	148	175	194	213	194	176	188	189	186	185	188	189	189	178	163	145	148	176	176	178	177	179	179	
26	0.34	103	124	147	158	164	192	191	162	187	179	163	157	163	165	150	138	121	119	124	128	131	135	129	129		
27	1.49	94	106	132	152	165	175	163	158	165	164	162	169	158	155	154	147	138	130	133	136	138	143	143	143		
28	0.01																										
29	0.14	104	122	141	158	189	218	197	184	196	196	191	186	191	191	189	177	162	138	143	148	148	152	167	167	167	
30	0.01	101	117	137	156	187	218	194	180	197	197	192	188	193	191	190	176	161	137	142	147	147	138	164	164	164	
31	0.03	115	166	190	181	186	176	145	132	142	136	140	141	137	142	150	136	116	98	103	105	108	123	110	110		
32	0.51	109	148	178	192	189	205	172	163	178	172	175	176	175	178	181	173	148	144	144	148	151	152	155	149	149	
33	0.06	106	116	145	169	194	230	208	179	209	203	185	183	198	199	209	200	172	147	147	150	153	148	157	152	152	
34	0.01	101	110	119	172	206	250	228	214	220	215	220	216	219	219	217	215	175	175	175	180	184	185	185	185		
35	0.04	101	117	137	156	186	217	192	179	195	195	190	186	191	190	189	182	164	141	146	151	151	154	161	161	161	
36	0.03	104	124	153	177	205	217	191	190	191	191	191	190	190	190	190	181	156	150	145	145	145	150	150	150		
37	0.08	105	113	127	146	158	170	162	149	151	151	151	151	151	149	148	147	144	138	138	147	147	147	161	153	154	
38	0.05	100	100	179	179	184	202	181	170	173	185	190	190	191	191	190	160	155	155	150	150	160	170	180	180		
39	0.95	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	155	155	155	155	155		
40	0.26	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	155	155	155	155	155		
41	0.07	115	126	155	192	200	210	198	173	183	185	185	186	187	189	191	176	166	155	155	155	155	155	155	155		
42																											
Wtd.	Ave.	....	73.09	101	110	134	159	178	214	175	157	171	171	166	164	161	160	152	143	131	127	131	131	133		

REGIONS I TO VIII, INCLUSIVE

Tabulation of Indices by Years and by Accounts
Applicable to the Entire United States

Acct.	*Per Cent	1915	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	
EQUIPMENT																											
51	5.42	86	102	145	189	202	248	192	179	197	185	171	191	190	179	188	194	184	168	166	176	188	188	201	201	201	
52	0.10	100	117	137	184	184	217	197	196	198	199	192	194	202	203	221	221	210	175	165	185	190	190	198	199	190	
53	11.22	101	148	183	243	267	284	184	156	200	179	171	163	178	169	185	181	161	144	144	165	177	180	191	190	198	
54	2.14	89	104	132	164	197	213	169	152	192	187	183	189	191	180	183	181	178	161	161	173	182	182	195	195	194	
55	0.02	89	104	132	164	197	213	169	152	192	187	183	189	191	180	183	181	178	161	161	173	182	182	195	195	194	
56	0.48	107	125	164	227	245	239	200	175	170	170	170	170	170	170	170	170	165	158	148	148	158	160	171	171	171	
57	0.56	96	128	165	225	244	263	193	168	203	183	188	180	192	184	195	191	178	165	165	177	180	180	197	197	200	
58	....	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wtd. Ave.	19.94	96	130	166	219	240	265	185	163	198	182	173	174	183	174	186	185	170	153	153	169	180	181	195	194	198	
51-58	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
GENERAL EXPENDITURES																											
71-75
& 77	0.89	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	
76	6.08	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	
Wtd. Ave.	6.97	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	
71-77
1-46	73.09	101	110	134	159	178	214	175	157	171	171	166	166	164	161	160	152	143	131	127	131	131	133	142	138	137	
51-58	19.94	96	130	166	219	240	265	185	163	198	182	173	174	183	174	186	185	170	153	153	169	180	181	195	194	198	
71-77	6.97	102	111	135	161	181	216	176	158	172	172	167	167	165	162	161	153	144	132	128	132	132	134	143	139	138	
Wtd. Ave.	100	100	115	142	173	193	226	177	159	177	174	168	168	169	164	166	160	149	136	133	140	142	143	153	149	149	
1-77

* The percentages shown are the relationship in dollars of each individual account to the total of Accounts 1 to 77, inclusive, except Account 2—Land, and were arrived at by taking 1910-1914 dollars from the basic engineering reports with varying dates of valuation from 1914 to 1921, inclusive, and adjusting for changes shown by the "Bringing to Date" reports. The "Statistics of Railways" were also examined for changes in recent years.

than in 1914 and the period immediately preceding which was studied in establishing the base line.

Equipment Figure Continues to Rise

Equipment, grouped into seven accounts, represents approximately 20 per cent of the total cost of the railroads, the statement says. In 1939 there was a continuation of the rise indicated by 153 in 1932-1933; 195 in 1937; 194 in 1938, and advancing to 198 in 1939. Steam locomotives held steady in 1937-1938-1939 at 201 while freight-train cars, Account 53, increased from 191 in 1937 to 198 in 1939. The compilation shows that the seven general expense accounts show a slight dip from 143 in 1937, to 139 in 1938, and 138 in 1939, the peak being 216 in 1920.

The accounts for which the indices are shown are the several primary accounts designated in the Classification of Investment in Road and Equipment of Steam Roads. These accounts, shown by their numbers in the tabulation, are as follows:

I—ROAD:

- 1. Engineering
- 2. Grading
- 3. Underground Power Tubes

- 5. Tunnels and Subways
- 6. Bridges, Trestles, and Culverts
- 7. Elevated Structures
- 8. Ties

- 9. Rails
- 10. Other Track Material
- 11. Ballast
- 12. Tracklaying and Surfacing
- 13. Right of Way Fences
- 14. Snow and Sand Fences and Snowsheds
- 15. Crossings and Signs
- 16. Station and Office Buildings
- 17. Roadway Buildings
- 18. Water Stations
- 19. Fuel Stations
- 20. Shops and Engine Houses
- 21. Grain Elevators
- 22. Storage Warehouses
- 23. Wharves and Docks
- 24. Coal and Ore Wharves
- 25. Gas Producing Plants
- 26. Telegraph and Telephone Lines
- 27. Signals and Interlockers
- 28. Power Dams, Canals, and Pipe Lines
- 29. Power Plant Buildings
- 30. Power Substation Buildings
- 31. Power Transmission Systems
- 32. Power Distribution Systems
- 33. Power Line Poles and Fixtures
- 34. Underground Conduits
- 35. Miscellaneous Structures
- 36. Paving
- 37. Roadway Machines
- 38. Roadway Small Tools
- 39. Assessments for Public Improvements
- 40. Revenues and Operating Expenses During Construction
- 41. Cost of Road Purchased
- 42. Reconstruction of Road Purchased
- 43. Other Expenditures—Road
- 44. Shop Machinery
- 45. Power Plant Machinery
- 46. Power Substation Apparatus
- 47. Unapplied Construction Material and Supplies

II—EQUIPMENT:

- 51. Steam Locomotives
- 52. Other Locomotives
- 53. Freight-Train Cars
- 54. Passenger-Train Cars
- 55. Motor Equipment of Cars
- 56. Floating Equipment
- 57. Work Equipment
- 58. Miscellaneous Equipment

III—GENERAL EXPENDITURES

- 71. Organization Expenses
- 72. General Officers and Clerks
- 73. Law
- 74. Stationery and Printing
- 75. Taxes
- 76. Interest During Construction
- 77. Other Expenditures—General



"City of Los Angeles" Making Time Near Hanna, Wyo.

Motor Transport Section

Texas Truck Routes Expanded

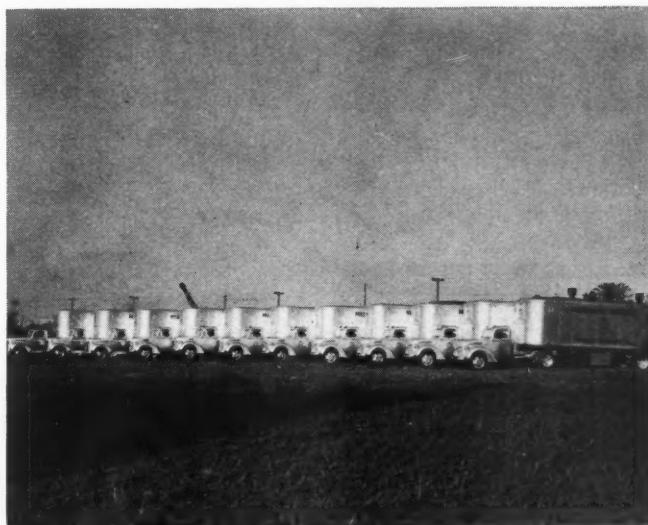
Missouri Pacific increases fleet of highway vehicles engaged in co-ordinated service

THE Missouri Pacific is rapidly expanding the rail-highway co-ordinated service in Texas, with which it is better serving the needs of its patrons. In the March 23, 1940, issue of the *Railway Age* the manner in which this railway is serving the Lower Rio Grande valley with flexible and speedy truck service was described in detail. At that time, the Texas operations were largely confined to this area, but they have since been extended to cover a large part of central and eastern Texas served by the Missouri Pacific Lines, to the betterment of the service on merchandise traffic in each case, as well as resulting in more efficient and economical handling of this class of freight.

One of the ways in which service has been improved is on the network of branch lines in the immediate vicinity of Houston, Texas. A number of important cities near Houston, such as Freeport, East Columbia and Brazoria are served by these truck routes, many of them receiving same day service out of Houston and all of them early first morning deliveries.

In addition to this expedited local service between Houston and the points on the truck route, the service on all merchandise from all distributing points, such as Dallas, Beaumont, Fort Worth, San Antonio, Waco, St. Louis, Memphis, Little Rock and New Orleans, is substantially improved by means of the afternoon truck departure from Houston. This truck handles merchandise from Dallas, Beaumont, Fort Worth, San Antonio, and Waco, and affords first afternoon service to all points between Houston and Freeport. It also handles freight from St. Louis, Memphis, Little Rock, New Orleans, etc., affording second afternoon delivery. This freight is brought into Houston in through merchandise cars by fast freight trains arriving at Houston in the morning. These set-out merchandise cars are placed at the freighthouse at Houston and are unloaded and the merchandise is tendered to the truck departing at 11:59 a. m. Prior to the inauguration of this truck service, such freight remained in Houston all day because there was no service available. As contrasted with previous train schedules, this new truck service affords a saving of from 1 hr. 50 min. between certain points to 72 hr. between other points. Prior to inauguration of the truck service this traffic was dependent upon local train service from Houston, with only tri-weekly service between some points.

The Missouri Pacific Freight Transport Company has also inaugurated a system of co-ordinated truck-rail service between Waco, Texas, Mart and Marlin. All merchandise to Mart, Marlin and Waco is handled by freight trains to Mart. From there it is distributed by truck service into Marlin and Waco. Fast through freight trains bring such freight into Mart in through



Part of the Texas Fleet of M. P. T. Trucks

cars from principal distributing points, such as Houston, Dallas and Fort Worth. One of these Red Ball trains leaves Houston at 8 p. m. daily and arrives at Mart at 2:20 the next morning. A similar train departs from Fort Worth at 6:50 p. m. and arrives at Mart at 11 p. m. This train from Fort Worth also picks up a through merchandise car from Dallas at Italy, which car is handled into Italy by the Texas Electric. Upon arrival of these trains at Mart the through merchandise cars containing freight for Mart, Marlin and Waco are immediately placed at the freight depot. The freight is there transferred to trucks.

This arrangement gives a much better service to all three points as it affords all three towns equal service from various points through the consolidation of freight into one car for Mart, whereas the tonnage involved would not justify the use of a through merchandise set-out car to each of the three towns from each distributing point. Such freight would have to be handled on the slower local trains. The same condition is likewise true in connection with outbound freight. This truck service also affords a double daily service between Waco, Marlin and Mart for local shipments, which service was not available when the freight was handled by local train service. The service as a whole is far more flexible than train service as with the use of an additional relief truck, together with the regular scheduled truck, the Missouri Pacific Freight Transport Company is in a position to afford the merchants of Waco, Mart and Marlin practically any type of service necessary.

L. c. l. service to, from and between points on the

M. P. between Longview and Taylor has also been materially improved in recent months. Overnight service is afforded from Ft. Worth, Dallas, Waco, Austin, San Antonio, Houston, Shreveport and Texarkana to all points along this truck route. Second morning service is afforded in connection with the M. P. fast freight trains from such distributing centers as Memphis, Little Rock and St. Louis, with third morning from Chicago. In addition to the termini at Longview and Taylor, this route serves such towns as Kilgore, Henderson, Arp and Overton in the East Texas oil fields, and Lindale, Troup and Tyler in the "Rose Garden" country, as well as several other towns. The service to all these points has been improved from 24 to 48 hours, and some 2,945 box car days are being saved monthly.

One truck leaves Longview at 2:45 a. m., arriving at Taylor, its western terminal at 12:44 p. m. Two other trucks leave Longview at 2:30 a. m., and run as far as Palestine, arriving there at about 6 a. m. In the reverse direction, two trucks leave Palestine at 3:45 a. m. and arrive at Longview between 7 and 7:30 a. m., making direct connections with both the M. P. and the T. & P. fast trains for the north and for Shreveport and New Orleans on the east. The Mineola branch is served by a truck leaving Palestine at 3:45 a. m., arriving at Mineola at 8 a. m. In the reverse direction, a truck leaves Mineola at the same time, 3:45 a. m., and arrives in Palestine at 8 a. m.

In this manner, connections are made with the fast trains from northern points, the freight arriving at and being transferred to trucks at Longview in time for the early morning truck. Fast T. & P. trains bring the merchandise from Dallas and Fort Worth to Mineola, for distribution at that point, while Houston and Galveston freight is transferred to the trucks at Palestine. Freight from Waco, Austin, San Antonio and other points is carried by train to Taylor and distributed from there by truck. In this way, the prosperous and growing territory involved is given service from all directions and from all jobbing points which serve it.

A branch line of the International Great Northern, between Navasota and Madisonville, was about to be abandoned because it could not be made to pay its way, until the operation of a truck for handling merchandise, express and U. S. mail solved the problems and enabled the M. P. Lines to continue to serve the towns along the branch. On this operation, a truck leaves Navasota at 6 a. m., and arrives in Madisonville at 7:30 a. m. Another truck leaves Navasota at 4:30 a. m. and takes merchandise from Houston, San Antonio, Austin, Fort



Portable Refrigerating Units Are Carried in Each Truck When Necessary

Worth and Dallas to the towns of Huntsville and Phelps, and returns with merchandise to be delivered to points north and east.

Throughout the Missouri Pacific Freight Transport Company's truck operations in Texas, the patrons are accorded perishable protective service through the medium of small refrigerator units carried on the truck equipment on days when perishable freight is offered for transportation. These small, portable, refrigerating units are especially adapted for this service, as the additional weight is eliminated when no perishables are being handled. The expense of icing the small unit is materially smaller than would be the case if the entire trailer were iced, and the refrigeration is claimed to be much more satisfactory.

New Industrial Tractor

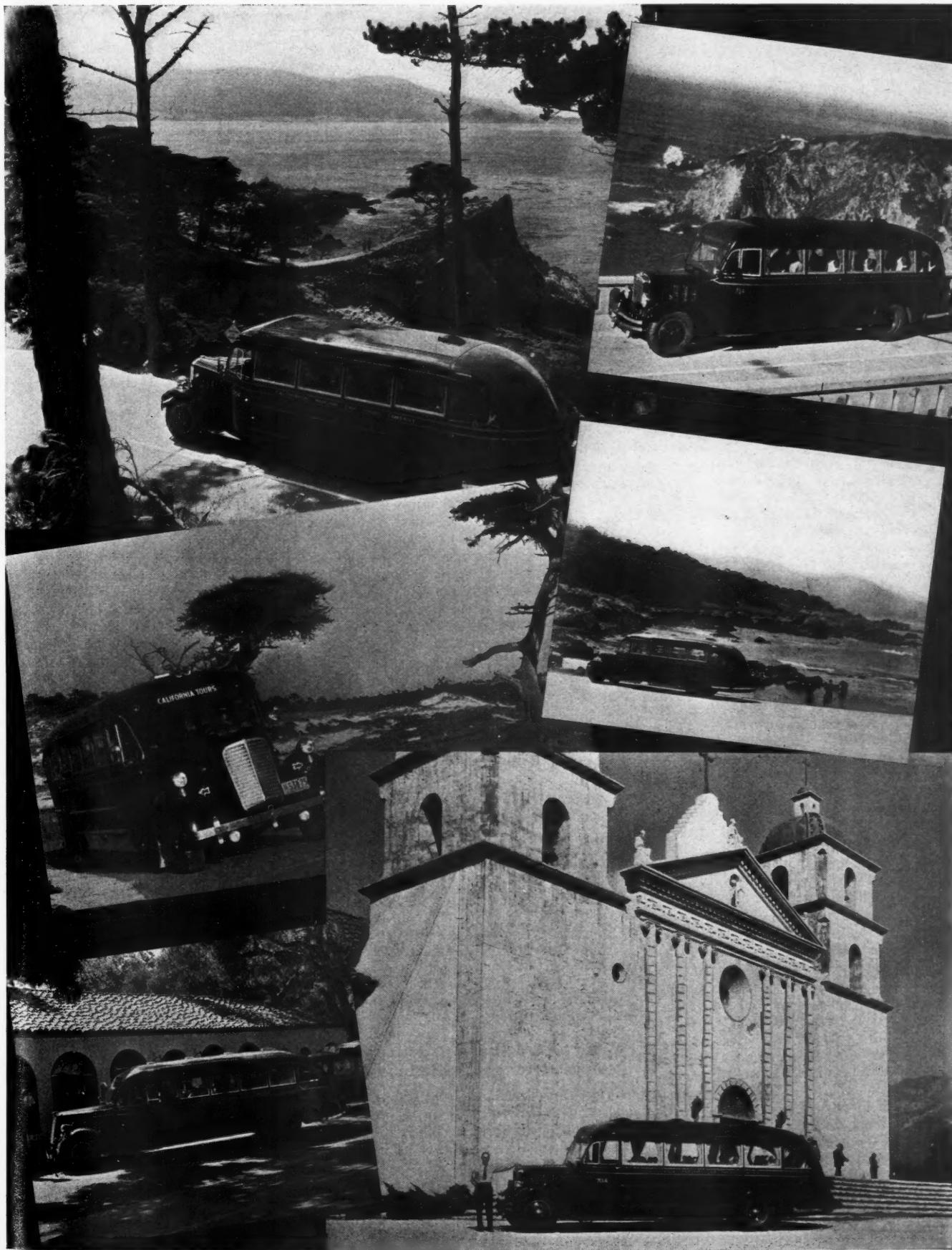
A NEW industrial tractor, Model "IB," has been introduced by the Allis-Chalmers Manufacturing Company. With 13.5 drawbar horsepower, and weighing 2,140 lb., this unit is said to speed up hauling operations and cut material costs on scores of jobs about railroad stations and yards, and on other jobs requiring low cost tractive power. The new tractor sets low on the ground and has sufficient stability to haul up and down inclined ramps without tipping. It is provided



The New Tractor Is a Flexible Unit of Many Uses

with both a foot brake and individual hand brakes on the rear wheels to facilitate maneuvering in cramped quarters. The "IB" is powered by an 18 h. p. heavy duty, medium speed tractor engine with removable cylinder liners, has a foot-controlled governor, and is protected by oil, air and fuel filters. Although the tractor develops 13 h. p. at the drawbar, fuel consumption is less than one gallon per hour.

* * * *



Typical Scenes Along the Route of the California Parlor Car Tours, Much Used by Railway Passengers in Connection with Through Tickets

NEWS

Rate Quiz Not to Be Dropped

Commission refuses to cease its probe and enlarges scope to include truck rates

Denying petitions requesting cancellation or indefinite postponement of the proceedings, the Interstate Commerce Commission this week broadened the scope of its general rate and classification investigations with the institution of a motor carrier class rates probe which will be consolidated with and heard on the same record as the No. 28300 investigation of the rail class rate structure. As noted in the *Railway Age* of August 17, page 260, American Trucking Associations, Inc., had asked for such a truck-rate investigation if the rail-rate proceedings were to go on; but the commission's action, taken on August 1, came after consideration of petitions filed before A. T. A.'s by the Association of American Railroads, the American Short Line Railroad Association and the Middle Atlantic States Motor Conference, Inc.

The order refusing to cancel or postpone the proceedings came after consideration of petitions in that connection filed by the Central Territory Rate Conference, the Merchants' Association of New York, the Akron Chamber of Commerce, et al., and the Indiana State Chamber of Commerce. This order applied to all three of the previously-instituted proceedings, i. e., the aforementioned 28300 rail rate investigation; No. 28310, Consolidated Freight Classification; and No. MC-C 150, Motor Freight Classification. The newly-instituted probe of truck rates is docketed as No. MC-C 200.

Meanwhile another commission order denies the petition of the Colorado Public Utilities Commission, et al., which sought a broadening of the issues in No. 28300 to include all rates which represent percentages of the regular numbered or lettered classes; and in Nos. 28310 and MC-C 150 to include all rules and regulations governing freight classifications, and all exceptions to the rail, rail-and-water, and motor-vehicle common carrier freight classifications which modify in any way the provisions or ratings in the classifications proper. The commission did, however, modify the scope of 28300 to include "all rates determined by ratings in the classification proper, irrespective of whether said ratings are stated as the regular numbered or lettered classes or as percentages of first class, but none other." Also, it brought

in the rates subject to ratings described in the foregoing and provided in the Illinois classification as well as rates subject to ratings in Official, Southern and Western classifications. Furthermore, the order which instituted No. 28310 was modified "to include the descriptions, minima, and ratings provided in Illinois classification and likewise published in said Consolidated Freight Classification."

A notice from I. C. C. Secretary W. P. Bartel accompanied the order instituting the MC-C 200 investigation of motor carrier class rates. It explained that the probe will cover "interstate class rates applicable to the transportation by common carriers by motor vehicle, or partly by motor vehicle and partly by water under joint class rates, between points in the United States generally, except in mountain-Pacific territory and on transcontinental traffic." Like 28300, Mr. Bartel went on, "this is an extensive undertaking requiring much time for preliminary work by the commission's own forces and by respondents and interests which desire to participate. Furthermore, it is the present intention to defer hearings herein until after No. 28300 has been on the way. For these reasons it is hoped that efforts now being made by affected carriers and shippers to revise class-rate structures to such an extent as they deem necessary or desirable will go on. Progress in that direction may be of much aid in developing a plan or method suitable for class-rate structures and satisfactory to both shippers and carriers."

President Signs Bills

President Roosevelt has signed H. R. 10014 and S. 4070. The former authorizes the Secretary of the Treasury to make compromise settlements of amounts due from railroads on loans made under section 210 of the Transportation Act of 1920; S. 4070 exempts employees of railroad-owned and railroad-controlled coal mines from coverage under the railroad labor, mediation, retirement and unemployment insurance acts.

Want I. C. C. Probe of Reductions in Merchandise Ratings

American Trucking Associations, Inc., and eight associated motor tariff organizations have filed with the Interstate Commerce Commission a petition asking suspension and investigation of those tariffs wherein Southern railroads are proposing reductions in the l. c. l. classification ratings of some 4,000 items. The proposal of the Southern roads was outlined in the *Railway Age* of August 3, page 188.

Forwarder Aids Get I. C. C. Scowl

Examiners do not approve of "marriage rule" or "flying trapeze"; "follow-lot" O. K.

Various proposals whereby Western railroads are undertaking to meet the requirements of the Interstate Commerce Commission's findings in the Freight Forwarding Investigation have been dealt with in a proposed report by Examiners R. N. Trezise and T. Leo Haden. The title case is I. & S. Docket No. 4664, Handing Carload Shipments in West, but the proposed report embraces also I. & S. Nos. 4668 and 4678, which are concerned respectively with the loading of multiple cars in the West and the furnishing of cars at variance with shippers' orders.

The practices involved in the title case were among those found by the commission in the Freight Forwarding Investigation to be without tariff authority and in violation of section 6 of the Interstate Commerce Act. They included the so-called "marriage rule" under which certain of the respondent railroads permitted forwarders to load a car at one point and combine it in billing with another car loaded at another point, applying the carload rate on the basis of a single shipment from billing origin to destination. The examiners would have the commission find not justified the suspended schedule whereby the carriers first proposed to embody the "marriage rule" in their tariffs—such a finding to be without prejudice to the establishment of a substitute or amended "marriage rule" as submitted at the hearing. The latter, the proposed report said, "is substantially the same as the proposed rule but stated in clearer terms."

Next was the so-called "flying trapeze rule" applied in instances where stop-off arrangements were not authorized by tariff to permit a portion of a carload shipments contained in a two-car consignment to move in a separate car to an off-line or different destination than that to which the carload shipment was billed. The freight charges were constructed on the basis of the carload rate from origin to billed destination, plus the l. c. l. rate from the billed destination to the off-line point, on the portion of the freight moved directly from origin to off-line point. A third practice was that covered by the so-called "follow-lot rule" which permitted freight for stop-off points to be loaded into separate cars regardless of whether the initial

car was fully loaded. The examiners recommend commission findings that the suspended schedules designed to authorize these two practices were not shown to be unlawful.

In I. & S. No. 4668 the railroads are proposing a new rule which they call an "excess rule"; it is intended to govern the application of rates and minimum weights on shipments which are in excess of the quantity that can be loaded in cars furnished. The proposed rule, the examiners point out, "broadens the application of Rule 24 of the Western Classification in that it contains no requirement that the shipper load the car to the established minimum carload weight or pay charges based on that weight." The examiners would have the commission approve this proposed "excess rule."

I. & S. No. 4678 was concerned with the so-called "two for one" rule which governs the application of rates and minimum weights on shipments for which the railroads furnish cars at variance with the size or type of the car ordered. Both the railroads and the shippers opposed this proposed rule which was published in compliance with a finding in the Freight Forwarding Investigation. It would require charges based on the carload minimum for the first car plus the carload rate applied to actual weight in the second car. The examiners agree with the railroads and shippers, recommending that the proposed rule be disapproved and that the findings of the Freight Forwarding Investigation be modified accordingly. "When two cars are necessary to haul a shipment the best method apparently is to equally distribute the loads in each car," the proposed report says. "A rule permitting the loading of freight in such a manner has been in effect in Western territory since about 1909."

Club Meeting

The Great Lakes Regional Advisory Board will hold its next meeting at the Mayflower hotel, Akron, Ohio, on September 25.

11,986 Air-Conditioned Cars

Class I railroads and the Pullman Company had 11,986 air-conditioned passenger cars in operation on July 1, according to the Association of American Railroads. This was an increase of 635 compared with the number of air-conditioned passenger cars on July 1, 1939, and an increase of 271 since January 1, this year.

Of the total number of such cars, Class I roads on July 1 had 6,852, an increase of 525 compared with the same date last year; the Pullman Company had 5,134, or an increase of 110 compared with July 1, 1939.

Floods in Old Dominion and Carolinas Affect Roads

Flood conditions affecting a number of rivers in southeastern Virginia and North Carolina following a minor hurricane which beat the coast from Savannah, Ga., to Norfolk, Va., disrupted traffic on railroad lines in low-lying areas last week. Chief cause of trouble was minor washouts and soft ground which resulted in minor de-

Hearing on Complaint Against Red-Cap Service Charge

The Interstate Commerce Commission has set September 9 as the date for hearing before Examiner Rice at Cincinnati, Ohio, on that complaint against the Cincinnati Union Terminal Company wherein Complainant Ida M. Stopher is challenging the validity of the plan whereby a specific charge is made for each piece of luggage handled by a red-cap. The complaint alleges that red-cap service is one to which a passenger is entitled when a ticket is purchased; and that the charge is in violation of the law because no tariff covering it has been filed with the I. C. C.

lays but at a number of points lines were completely blocked for days. The Atlantic Coast Line route between Pinners Point, Va., and Rocky Mount, N. C., was cut off at Norfleet, N. C., by high water and, as of the afternoon of August 21, both freight and passenger traffic was being routed over the Norfolk & Western via Petersburg. The road's double-track main line, which was severed for some time by flood conditions at Weldon, N. C., where it crosses the Roanoke river, was restored to service on the evening of August 20. During the period of blockade, trains were routed over the Seaboard Air Line main line which lies further inland.

At time of writing the Seaboard's Norfolk-Norlina line was under water for a considerable distance in the vicinity of Franklin, where it crosses the Blackwater. A shuttle service was being operated out of Norlina to Weldon, or as far north as possible and south from Portsmouth to Carrsville. Buses over a circuitous route were used to bridge the gap. Sleeping car passengers were routed via the N. & W. between Petersburg and Kilby junction, near Suffolk.

The Southern reports severe blockades on its Norfolk and Richmond lines and a tie-up of several days' duration on its Salisbury (N. C.) Asheville line. It also encountered trouble at the Savannah river at Augusta, Ga., where it suffered delays in detraining passengers for special movement over the river.

July Operating Revenues 9.3 Per Cent Above July, 1939

Preliminary reports from 87 Class I railroads, representing 80.5 per cent of total operating revenues, made public by the Association of American Railroads, show that those railroads, in July, 1940, had estimated operating revenues amounting to \$292,500,660 compared with \$267,729,097 in the same month of 1939, and \$367,342,430 in the same month of 1930. Operating revenues of those roads in July, 1940, were 9.3 per cent above those for July, 1939, but 20.4 per cent below July, 1930.

Freight revenues of the 87 Class I roads in July, 1940, amounted to \$238,598,093 compared with \$211,349,471 in July, 1939, and \$279,873,982 in July, 1930. Freight

revenues in July, 1940, were 12.9 per cent above the same month of 1939, but 14.7 per cent below the same month in 1930. Passenger revenues in July, 1940, totaled \$31,190,274 compared with \$34,256,298 in July, 1939, and \$54,771,015 in July, 1930. For the month of July, 1940, they were 9.0 per cent below the same month in 1939, and 43.1 per cent below the same month in 1930.

Status of R. F. C. Rail Loans

The monthly financial statement of the Reconstruction Finance Corporation, as of July 31, shows disbursements to railroads (including receivers) of \$770,919,564 and repayments of \$264,173,346.

A. A. R. Gets Two New Members

The Wheeling & Lake Erie and the Pittsburgh & West Virginia have become members of the Association of American Railroads, according to an announcement by that organization on August 16.

M. P. Would Buy Truck Route

The Missouri Pacific Transportation Company, affiliate of the Missouri Pacific, has applied to the Interstate Commerce Commission for authority to purchase the operating rights of Reynolds Motor Freight Lines on a route between Galveston, Texas, and Houston, including off-route operations to and from Texas City.

Cotton Belt Affiliate Asks I. C. C. Authority

The Southwestern Transportation Company, a motor carrier affiliate of the St. Louis Southwestern, has asked the Interstate Commerce Commission for authority to purchase from the Howe & Hill Truck Line its interstate operating rights between Jonesboro, Ark., and St. Louis, Mo.

G. M. & N. Will Inaugurate Two Streamlined Trains in October

The Gulf, Mobile & Northern will place two Diesel-electric streamlined trains in operation in October. The locomotives for these trains have been built by the American Locomotive Company and the passenger cars by the American Car & Foundry Company and the railroad's shops.

House Committee Reports Short-Line Claims Bill

The House committee on interstate and foreign commerce has voted to report favorably H. R. 10098, the bill introduced by Chairman Lea to facilitate the settlement of claims made by short lines for deficits incurred during the period of federal control.

Proposes House Probe of Air-Line Passenger Services

Representative Martin J. Kennedy, Democrat of New York, has introduced House Resolution 537, calling for a House interstate and foreign commerce committee investigation of the management of air lines "to determine the cause of missing connections, including whether various air lines deliberately bring about failure to make connections in order to injure the reputation of competing lines." The reso-

lution's opening "whereas" sets forth that "reports have been received that passengers on domestic air lines have been stranded at airports because the management of the different lines fail to make connections even in good weather."

Also, it is set forth that "the sale of airplane transportation that cannot be delivered, through failure to make connections, is tantamount to acceptance of money under false pretenses." All of which "is likely to lead to a refusal by the public to use the new method of transportation and thereby deter the development of the domestic air transportation system." The resolution calls for a report to the house on "whether legislation is needed to correct the present situation."

Columbus & Greenville Qualifies as Self-Insurer Under Motor Act

The Interstate Commerce Commission, Division 5, has approved the application of the Columbus & Greenville for authority to qualify as a self-insurer under section 215 of the Motor Carrier Act. The road operates a truck line between Columbus, Miss., and Greenville as an auxiliary service in connection with its rail operations.

I. C. C. Control Over Hours of Motor Carrier Employees

Senator Johnson, Democrat of Colorado, has introduced S. 4279 to amend the Motor Carrier Act to give the Interstate Commerce Commission jurisdiction over the maximum hours of service of all motor carrier employees. H. R. 10180, a similar bill, was previously introduced in the House by Representative Eberharter, Democrat of Pennsylvania.

The Supreme Court recently upheld the commission in its finding that the present law gives it jurisdiction only over those employees whose activities affect safety of operations.

Minimum Wage Hearings September 23

Hearings in connection with railroad minimum-wage recommendations recently submitted by the Railroad Carrier Industry Committee, will begin on September 23 before Colonel Philip B. Flemming, administrator of the Wage and Hour Division, Department of Labor. As noted in the *Railway Age* of May 11, page 832, the committee has recommended that the minimum hourly wage on Class I roads be increased six cents, from 30 cents to 36 cents, and that on other roads be raised three cents, from 30 cents to 33 cents.

In announcing the date for the hearings, Administrator Flemming made public the text of the committee's report and recommendations; also, the minority report wherein the committee's employee members contended that a 40 cent minimum shou'd have been recommended.

Six Business Men Run a Railroad For a Day

The 16-mi., two-ft. gage Bridgton & Harrison in Maine has discovered a new form of revenue for off-days. Several Sundays ago six business men from Boston, Mass., and vicinity joined together

Suspends Proposed Truck-Rate Cut on Naval Stores to Gulf Ports

The Interstate Commerce Commission has suspended from August 17 until November 15 the operation of tariffs wherein the Evans Motor Freight Line of Gulfport, Miss., is proposing to establish new commodity rates of eight cents on rosin and 12 cents on turpentine and pine oil, minimum 50,000 lb., in straight or mixed shipments, from Columbia, Miss., and Laurel to Gulfport, applicable only on export or coastwise traffic.

The Evans Motor Freight Line was the principal competitor of the railroads for this naval stores traffic which was dealt with in the general Naval-Stores-from-Mississippi-to-Gulf-Ports case wherein the evidence included comparative data on the costs of rail and motor transportation. The commission's decision in that proceeding was reviewed in the *Railway Age* of February 3, page 254.

and hired the line for \$60 with the understanding that they were to be permitted to operate locomotive No. 8 and a train by themselves to and from any point on the line. It is reported that the amateur railroaders operated on a somewhat "screwy" schedule, interrupting trips for such things as picking blueberries and trying out swimming holes. All interested parties were invited to ride without charge—and, it is rumored, invited to help fire.

The road also earned some non-operating revenue for the day. Donations totaling \$50 were collected for the purpose of making necessary repairs to locomotive No. 9, which is at present *hors de combat*.

Forwarders Seek More Time on Joint Rate Arrangements

Petitions seeking a further postponement beyond the present September 1 deadline of the effective date of outstanding Interstate Commerce Commission orders which require the discontinuance of joint-rate arrangements between forwarders and motor carriers have been filed with the commission by Acme Fast Freight, Inc., National Carloading Corporation and a group of 25 railroads. All petitions state the expectation of the petitioners that Congress will take some action on pending legislation for the regulation of forwarders; and thus they ask the commission to delay its crack-down on the joint forwarder-truck tariffs until the legislative angle is disposed of.

The Acme petition is in No. MC-2200 which involves only Acme tariffs; the others are in Ex Parte No. MC-31, Tariffs of Forwarding Companies. Acme asks for a postponement to a date "subsequent to January 1, 1941"; National would have it "until further order of the commission"; while the petitioning railroads suggest a delay until January 3, 1941. The House committee on interstate and foreign com-

merce was scheduled to consider the pending "stop-gap" forwarder regulation bills at a meeting on August 15.

Freight Car Loading

Revenue freight car loadings for the week ended August 17 totaled 743,121 cars, the Association of American Railroads announced on August 22. This was an increase of 16,145 cars, or 2.2 per cent, above the preceding week, an increase of 73,328 cars, or 10.9 per cent, above the corresponding week last year, and a rise of 145,237 cars, or 24.3 per cent, above the comparable 1938 week.

As reported in last week's issue, loading of revenue freight for the week ended August 10 totaled 726,976 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

	For Week Ended Saturday, August 10		
Districts	1940	1939	1938
Eastern	145,753	133,181	114,223
Allegheny	155,298	129,693	104,623
Pocahontas	49,776	48,898	42,642
Southern	97,229	94,421	88,259
Northwestern ..	129,665	110,198	93,110
Central Western ..	105,747	100,937	101,700
Southwestern ..	43,508	43,695	45,011
Total Western Districts	278,920	254,830	239,821
Total All Roads	726,976	661,023	589,568

Commodities	Grain and grain products	41,386	40,103	47,890
Live stock	10,748	11,234	11,945	
Coal	125,897	114,061	91,517	
Coke	10,283	6,734	4,228	
Forest products	36,370	31,222	29,722	
Ore	70,175	49,077	24,798	
Merchandise l.c.l.	149,635	153,117	148,537	
Miscellaneous	282,482	255,475	230,931	
August 10	726,976	661,023	589,568	
August 3	718,430	656,553	584,062	
July 27	718,489	655,531	588,697	
July 20	729,897	651,665	580,818	
July 13	740,465	669,888	602,445	
Cumulative Total, 32 Weeks ...	21,177,553	19,113,612	17,677,203	

In Canada.—Carloadings for the week ended August 10 totaled 52,317, as compared with 53,261 in the previous week and 44,054 last year, according to the summary of the Dominion Bureau of Statistics.

Total Cars	Total Cars Rec'd from Loaded	Total Cars Rec'd from Connections
Total for Canada:		
August 10, 1940	52,317	22,383
August 3, 1940	53,261	22,663
July 27, 1940	54,655	22,963
August 12, 1939	44,054	17,542
Cumulative Totals for Canada:		
August 10, 1940	1,626,436	780,390
August 12, 1939	1,389,165	649,370
August 13, 1938	1,398,486	649,287

Grade Crossing Accident Fatalities Increase

The need for exercising increased care in approaching and passing over highway-railroad grade crossings is urged by the Safety Section of the Association of American Railroads. In the first six months of 1940, according to reports just received by the Safety Section, 884 persons lost their lives and 2,181 persons were injured in highway railroad grade crossing accidents. This was the greatest number of fatalities in any corresponding period since 1931, in the first half of which there were 921 fatalities.

The total number of fatalities in the first six months of 1940 was an increase

of 204 compared with the same period in 1939, and an increase of 188 compared with the same period in 1938. Persons injured in such accidents in the first six months of 1940 was an increase of 335 compared with the same period in 1939, and an increase of 219 compared with the same period in 1938.

19,765 New Freight Cars on Order August 1

Class I railroads on August 1, 1940, had 19,765 new freight cars on order, according to the Association of American Railroads. On July 1, 1940, they had 16,933 on order, and on August 1, last year, there were 8,473. The new cars on order on August 1, this year, included 11,565 box, 7,218 coal, 360 stock, 250 flat, 50 refrigerator and 322 miscellaneous cars.

Class I roads on August 1, this year, also had 168 new locomotives on order, of which 115 were steam and 53 electric and Diesel-electric. On July 1, 1940, there were 124 new locomotives on order, of which 97 were steam and 27 were electric and Diesel-electric. New locomotives on order on August 1, last year, totaled 118 which included 72 steam and 46 electric and Diesel-electric.

In the first seven months of 1940, the railroads put in service 40,416 new freight cars compared with 10,302 in the same period last year. Of the total number of new freight cars placed in operation in the first seven months of this year, there were 18,640 box, 19,876 coal, 606 flat, 595 refrigerator, 88 stock and 611 miscellaneous cars. In the first seven months this year, the railroads also put in service 201 locomotives, of which 58 were steam and 143 electric and Diesel-electric. Installed in the first seven months last year were 139 new locomotives, of which 20 were steam and 119 electric and Diesel-electric.

Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

Plan for Air-Rail Freight Agency Submitted to A. A. R.

A. F. Cleveland, traffic vice-president of the Association of American Railroads, this week confirmed reports that the Association has received for its consideration a plan calling for a nationwide air-freight company to be owned jointly by the country's air lines and railroads. Mr. Cleveland did not identify the sponsors of the plan, which he said was being analyzed at the A. A. R. where it will be appraised and passed upon in due time—just like other proposals which are always coming alone.

According to what has been learned about the plan, it contemplates that the initial function of the new company would be to conduct comprehensive investigations and cost studies of air-freight operations, based upon the development of new types of cargo planes. The sponsors make the point that the railroads should get into the air-freight business on the ground floor, lest it make inroads into their freight revenues like the air passenger services have on high-class passenger business.

To the Railway Express Agency the sponsors of the plan would assign the ground gathering and distribution of the

B. R. T. Attacks Unpliable Adjustment Board "Ref"

Seeking to prevent or delay the appointment of Dr. Dexter M. Keezer, a referee on several occasions for the National Railroad Adjustment Board, as president of the City College of New York, a vice-president of the Brotherhood of Railroad Trainmen recently wrote a letter to a New York local of the American Federation of Teachers, recommending that he be kept "within the borders of the State of Oregon." Dr. Keezer, who is president of Reed College, Portland, Ore., had been considered for the presidency of New York's city-owned college but due to delays by the college administrative committee in recommending him, he asked to be withdrawn from consideration in a letter dated August 19, stating that he has been accused of an anti-labor basis. Subsequently, officers of the Board of Higher Education have cleared Dr. Keezer of such charges.

An officer of the teachers' union appeared at a recent meeting of the City College administrative committee during which he opposed Dr. Keezer on his labor record and released a statement from the B. of R. T. which read: "If there is any way in which you can keep him [Dr. Keezer] within the borders of the State of Oregon, I am sure it would be helpful to labor outside the state, as he is the most biased, and from his discussions, the most prejudiced man I have ever come into contact with as far as our brotherhood and our railroads are concerned."

Dr. Keezer served as referee for the Adjustment Board at Chicago for a short time, during which he incurred the displeasure of several of the railroad labor organizations. He was also a member of the three-man emergency board appointed by President Roosevelt to report on the recent 44-hour week demand on the Railway Express Agency of the Brotherhood of Railway Clerks, which board granted the greater part of the Clerks' demand.

freight; but R. E. A. would not be expected to take a leading part in developing the enterprise, where, it is contended, a new and younger personnel would be advisable. It would be the aim of the new company to reduce air-freight rates and develop a simple rate structure. Initial cargo ships, it is suggested, might have a capacity of 10 tons; and the study accompanying the plan undertakes to show that airplane design has reached the point where airport-to-airport costs are 10 cents per ton-mile. This is expected to be reduced as larger cargos and planes become available.

The railroads are urged to appoint representatives to work with the air lines in implementing the plan. Or, as an alterna-

tive, it is suggested that the railroads themselves apply to the Civil Aeronautics Authority for the necessary certificates.

Commerce Department Sponsoring Transport Studies

Four transportation studies are among 45 research projects "of value to the national defense program" which have been inaugurated by state universities participating in the Commerce Department's cooperative business research plan. A report on research now in progress at the various universities of the nation is now in preparation by Dr. Nathanael H. Engle, assistant director of the Bureau of Foreign and Domestic Commerce and coordinator of the business research program, Secretary of Commerce Hopkins said on August 21.

The studies, some of them already completed but awaiting publication, are the work of faculty members and graduate students. They include analyses of basic commodities and resources, studies of strategic industries, wages and hours, production standards, trade barriers, industrial potentials of various states and regions, studies of transportation—inland and water, merchant marine, and railroad freight rates—analyses of Latin American and European trade, and Far Eastern economic and financial problems. The transportation studies are listed as follows:

1. Economics of Inland Transportation—University of Florida, by Truman C. Bigham. Due for completion 1941. A general study of transport problems.

2. Latin American Trade—Ocean shipping Services—University of Florida, by A. Stuart Campbell. Completed May 1940. Study of the ocean shipping services available for the trade of Latin America, with especial reference to the services from U. S. ports and the ports of Florida. It stresses the effects of the European War on Latin American trade and ocean shipping. Indications are given as to the future trend of trade between the U. S. and Latin America, and the possibilities of carrying on such trade with Florida ports.

3. Merchant Marine—Rutgers University, by John G. B. Hutchins, Ph. D. Due to be completed 1941. It is planned to cover the development of the American merchant marine from the World War to the present time. Emphasis will be placed on the organization and finance of the maritime industries, their position in international navigation, and the effects of American and foreign policies of aid and control.

4. A History of Railroad Freight Rate Affecting the Southwest—University of Texas, by Jean D. Neal. Due to be completed May 1941. A study of the history, development and economics of railroad rates in the Southwest as contained in Interstate Commerce Commission decisions, state commission actions, legislative actions and the like. A critical discussion of attempts to equalize southwestern rates with those applicable in other sections of the country.

"Grand Circle" Fares to Continue Another Year

The railroads will continue for another year—until October 31, 1941—the low "grand circle" railroad fares by which an individual can travel by rail from his home to both Atlantic and Pacific coasts thence to the original starting point at a substantial reduction from standard rates, J. J. Pelley, president of the Association of American Railroads has announced.

Continuation of this plan was decided upon by the railroads because of the success attained by it in the first year of operation when it was used by 32,500 persons. Of that number, 25,000 purchased grand circle tour first-class tickets, that is traveled by Pullman, and 7,500 traveled by coach.

Under the plan, an individual can purchase a "grand circle" coach ticket for \$90

or a first-class ticket for \$135 plus the regular sleeping or parlor car charges for space occupied. These greatly reduced fares apply from all cities and towns in the United States. The plan makes it possible for an individual to travel by rail on a "grand circle" fare from 6,300 to 8,000 miles depending on the starting point and the route selected.

The "grand circle" fare plan was inaugurated by the railroads on April 28, 1939, for the purpose of stimulating travel to the New York and San Francisco World Fairs and to points of scenic interest throughout the country. It permits travelers to choose many attractive routes with stop-over privileges at any points desired in either direction. Children between 5 and 12 years of age, who are accompanied by parents or guardians, are allowed half fare rates.

May Bus Revenues 0.1 Per Cent Below 1939

Class I motor carriers of passengers reported May revenues of \$8,875,767 as compared with \$8,888,403 in May, 1939, a decrease of 0.1 per cent, according to the latest compilation prepared by the Inter-

In 1912 he forsook the railroads and their equipment supplies (in which he had climbed to a responsible position and a salary of over \$12,000 per annum) to go with the Buick Motor Company as works manager at \$6,000. He rose rapidly in the automobile business, becoming president of Buick and in 1920 taking over the management of the Willys-Overland Company. Finally he brought out his own car and made the Chrysler Corporation one of the "big three" in automobile manufacturing. Mr. Chrysler was a director of the New York Central at the time of his death.

B. & M. Offers Rail-Air Tickets At Reduction

Combination round-trip tickets good for travel in one direction by air and return by railroad (either in coaches or Pullmans), or vice versa, and priced at a 10 per cent reduction below the rate of the applicable one-way fares, were placed on sale on August 17 by the Boston & Maine, the Maine Central and Boston-Maine Airways. According to an announcement of the transportation companies, sale of the tickets for the present will be confined to journeys between Boston, Mass., and Portland, Me.,

rail tariff of its type ever filed. However, in 1928, the Pennsylvania and Santa Fe established a 48-hour joint rail-air service between New York and Los Angeles, Cal., which gave patrons the advantage of night-time travel in Pullmans and daytime travel by plane, while in the same year a number of roads participated in a ticketing plan which permitted optional travel by plane or train between Chicago and the Twin Cities, Minn.

S. 2009 Senate Vote Awaits Close of Conscription Debate

Chairman Wheeler of the Senate committee on interstate commerce this week decided to defer calling up the conference report on S. 2009, the omnibus transportation bill, until the debate on the pending conscription bill is concluded. That debate was expected to continue for most of the week at least, and thus action on the conference report will perhaps be delayed until next week.

As noted in the *Railway Age* of August 17, page 257, the conference report, with its compromise "labor-protection" provisions and a modified Jones agricultural rate amendment but without the Miller-Wadsworth amendment, passed the House on August 12 by a vote of 246 to 74. Observers in Washington believed that this decisive vote forecast favorable action by the Senate. Meanwhile, however, the opponents of the bill's water carrier regulatory provisions are expected to concentrate their last-ditch attacks on that change in the Panama Canal Act which Chairman Lea of the House committee on interstate commerce insisted is merely a clarifying one.

The change gives specific statutory authority to the I. C. C. to authorize new acquisitions by railroads of water lines, other than those operating through the Panama Canal. Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, agrees with Mr. Lea. Replying to a statement issued by the Mississippi River Carriers Association, Judge Fletcher wrote to the Senate conferees a letter which was inserted by Conferee Truman, Democrat of Missouri, in the August 15 issue of the Congressional Record.

After a long argument in support of his contention, Judge Fletcher said: "All this paragraph does is to give statutory sanction to the construction placed upon the present law by the Interstate Commerce Commission in a long line of decisions . . . which construction has never been questioned in the courts and has become so well established that no one now doubts its validity."

Downey Advocates System of Super-Highways

During the debate in the Senate on August 15 on the Burke-Wadsworth conscription bill, Senator Downey, Democrat of California, proposed an amendment to the bill which would authorize the President to provide for the construction "of an integrated system of super-safety highways throughout the United States, together with such air fields and military bases as he may deem advisable." This amendment has the same language as a bill, S. 4195,

	Passenger Revenue	Passengers Carried		
	May, 1940	May, 1939	May, 1940	May, 1939
New England Region	\$406,591	\$460,660	958,009	950,845
Middle Atlantic Region	1,348,000	1,406,533	2,752,687	2,454,973
Central Region	1,588,886	1,642,540	2,527,353	1,906,298
Southern Region	2,006,178	1,807,550	2,508,813	2,174,488
Northwestern Region	338,931	336,143	294,636	289,809
Mid-Western Region	803,388	789,215	553,640	540,580
Southwestern Region	1,118,998	1,135,720	1,145,260	1,151,801
Rocky Mountain Region	92,441	88,817	74,824	75,776
Pacific Region	1,172,354	1,221,225	1,368,547	1,284,479

state Commerce Commission's Bureau of Statistics from 144 monthly reports representing 145 bus operators. Passengers carried increased 12.5 per cent from 10,829,049 to 12,183,769.

The breakdown by regions of the bus revenue and traffic figures, which exclude data on charter or special party service, is given in the accompanying table.

W. P. Chrysler Dies at 65

Walter P. Chrysler, who left railroad service after 20 years service to enter the automobile manufacturing industry and became one of its leading executives, died at his home in Great Neck, N. Y., of a cerebral hemorrhage on August 18 at the age of 65. Born the son of a Union Pacific locomotive engineer, Mr. Chrysler entered railroad service in 1892 at the age of 17 as a machinist's apprentice in the Union Pacific enginehouse at Ellis, Kan. Later he was made a general foreman in the Colorado & Southern shops at Trinidad, Colo. After some years as a journeyman machinist he worked with several Western roads as a general foreman and master mechanic. He was appointed superintendent motive power and machinery of the Chicago Great Western in 1908 at the age of 33.

Two years later Mr. Chrysler went into the locomotive manufacturing business as assistant manager of the Pittsburgh Works of the American Locomotive Company, becoming full manager the following year.

Lewiston, Augusta, Waterville and Bangor, but "if the experiment proves as successful as we expect it will, we shall undoubtedly extend it all over the systems of the Boston & Maine and the Maine Central and Boston-Maine airways."

A joint announcement by J. W. Rimmer, vice-president (traffic) of the two railroads, and P. F. Collins, president of the airways, reads in part:

"It is a definite step towards an attempt to sell our service in accordance with the travel habits of our customers; an attempt to reach out and attract patrons now using private automobiles by advertising and offering the utmost flexibility.

"It is the first such attempt by American transportation companies and we hope will open up new possibilities in passenger transportation. We have had several requests from our patrons for such an arrangement, in order that they might complete business trips where the going and returning trip schedules by air or by rail alone were not convenient for their plans, but where the use of rail in one direction and air in another (or vice-versa) would induce them to make the trip via our lines if a reduced price round-trip ticket were issued for the trip."

Since the joint tariff had to be approved both by the Interstate Commerce Commission and the Civil Aeronautic Authority, it was necessary to work on the problem of authorization for a considerable period of time. According to the records of the I. C. C. and C. A. A. it is the first air-

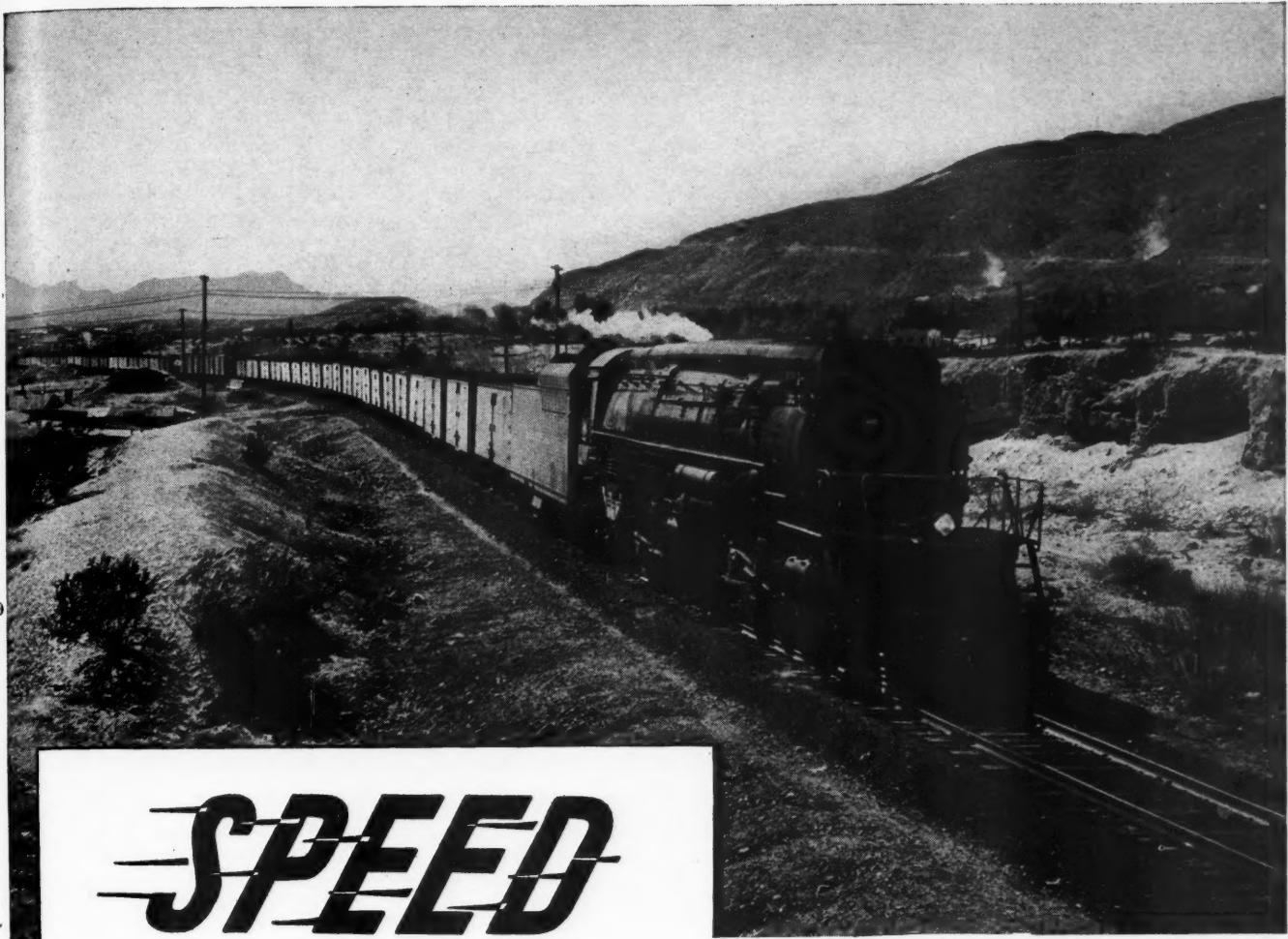


Photo courtesy Southern Pacific Company

SPEED

... is the essence of the times

The tempo of industry has speeded up. Confronted with the unexpected demands, the railroads are preparing to participate in the defense program by keeping supplies and materials moving and moving rapidly.

To do this the more progressive railroads are ordering new Lima Super Power power capable of handling the increased loads quickly and economically.



LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

which the Senator offered in the Senate several weeks ago, details of which were given in the *Railway Age* of July 13, page 89.

Senator Downey proposed that any young men who are drafted into the army be given the choice of working on these super-highway projects or taking regular military training. He also estimated that such a project would cost \$100,000,000,000 and would save the country annually some \$6,000,000,000 in increased speed of transportation. He reasoned that such a modern super-highway system would speed up traffic and save the country 10,000,000,000 vehicle-hours yearly. Translating this figure into money at the rate of 60 cents an hour, the Senator from California reached the estimated annual saving of \$6,000,000,000. It was also Senator Downey's belief that such a project would act as a "pump primer" and would bring widespread prosperity to the country.

During the debate Senator Mead, Democrat, of New York, asked Senator Downey whether or not he thought "it would be beneficial, from the standpoint of the United States government, to put the railroads of the United States in the best possible condition, because if the railroads had the latest railroad equipment, if they had the most efficient and most economical service and equipment, and if they had modernized roadbeds, it would not only be helpful to national defense, but it would take a large volume of traffic off the present highways of the United States?"

Senator Downey's answer was that if the Senator from New York would go along with his plan, the increased business in the country would make the railroads "highly prosperous." The Senate recessed without taking any action on the amendment.

N.Y. A. Report Sees Possibilities for Beginners in Railroading

There are still possibilities for beginners who want to work on the railroad, due to annual turnover which requires replacement of five per cent of employees each year, according to a study of the railroad industry, prepared by the National Youth Administration of Indiana.

The railroad industry, the study found, is primarily a man's world and opportunities for young women are chiefly for those who can qualify as stenographers, telegraph operators and other office workers. However, in the past few years many passenger lines have hired hostesses, most of whom are trained nurses. Much of the success of passenger service in the United States is dependent on Negro employees, i. e. Red Caps, Pullman porters and dining car waiters, according to the report.

This study is one of a series of over 100 occupational and industrial studies prepared by the National Youth Administration to acquaint young people with employment opportunities and training requirements in various fields. It contains chapters on the present status of the railroads; development of railroads; standardization and regulation research and technological changes; future trends; the railroad worker; wages and hours; protection of workers; training courses; and job descriptions.

"Whatever the degree of mechanization, the railroads will always need large numbers of men to insure safe and efficient operation and satisfactory service, and will continue to be among the largest employers in the nation," it says. "As the problems of the railroads become more complex, greater numbers of workers will be required who are trained in science, engineering, commerce, finance and law. While the number of college graduates having careers in railroading is small, the number of specifically trained people is bound to increase if the railroads are to serve the public most effectively."

A limited number of copies are available for distribution and may be obtained from the National Youth Administration for Indiana, 415 Century building, Indianapolis, Ind.

Refuse to Arbitrate Rutland Wage Case

Both the receiver of the Rutland and the labor organizations have refused the offer of arbitration held out by the National Mediation Board following a deadlock over the notice of the carrier to reduce wages from 10 to 30 per cent on a sliding scale, and the Board has given notice of termination of its services. In answer to a letter from Mediator John W. Walsh dated August 7, urging arbitration under the provisions of the Railway Labor Act, Rutland Receiver L. G. Morphy replied to the effect that since wages must be reduced, the question is not a "controversial" one and hence does not lend itself to arbitration. On their part officers of the employees' organizations announced unwillingness to enter into arbitration because "any proposal to reduce wages is not in order under present conditions."

In view of the stalemate, Secretary R. F. Cole of the Mediation Board has notified all parties that "it is the judgment of the Board that all practical methods provided in the Railway Labor Act for adjusting the dispute have been exhausted, without effecting a settlement", and served notice that the services of the Board are terminated as of August 13, except for supplementary functions as provided in sections 5 and 10 of the Act. The next move is the creation of an emergency board by the President, unless the parties agree to arbitration in the intervening period. Meanwhile for 30 days "no change shall be made in pay, rules or working conditions or established practices in effect prior to the time the dispute arose."

In his letter to the Mediation Board Mr. Morphy declared: "A substantial reduction in wages is necessary because the traffic of the Rutland Railroad Company does not yield enough revenue to pay the present wages and other necessary expenses and taxes. If the Rutland Railroad is to continue in operation the question Shall wages be reduced? admits of only one answer—They must be reduced. Consent to arbitrate would admit that this is a controversial question; whereas it is not. Therefore I regret that I cannot consent to arbitration."

A letter signed by eight union officers representing all of organizations with which the Rutland has working agreements, reads

in part as follows: "On more than one occasion, in our several conferences, the receiver has stated to us that he regards his proposal [i. e. the notice of reduction of wages] as being unfair and that it was submitted in the terms described in the notice [of December 9, 1938] under direction of former Federal Judge Howe. In view of the foregoing and it also being our opinion that any proposal to reduce wages is not in order under present conditions, the undersigned Organization Representatives are unwilling to enter into an arbitration in regard to the question in dispute."

Construction

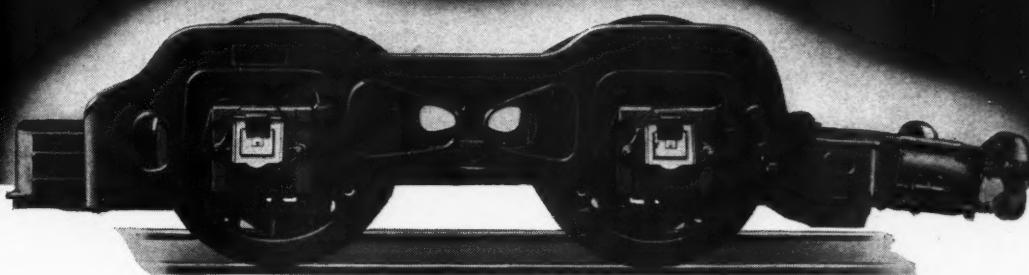
CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded the Ross and White Company for the erection, including foundations, of two locomotive coalmasters at Burlington, Iowa and Sibley.

SOUTHERN PACIFIC.—A contract amounting to approximately \$56,480 has been awarded Bakker and Robinson, San Bernardino, Cal., for the construction of combination stations at Pomona, Cal., and Alhambra. The buildings are to be of wood frame construction, finished on the exterior with stucco. Roofs are to be of clay tile and the interior will be finished in plaster and stucco. Public rooms are to have beamed and trussed ceilings and the floors in these rooms are to be of tile, elsewhere they are to be of cement. The proposed construction at Alhambra includes in addition to the new station building, a new automobile unloading dock and team track facilities, with necessary platforms, driveways and parking. The total cost of the work to be performed at Alhambra will amount to approximately \$76,027 and the total cost of the work to be done at Pomona, including work to be done by railway forces, will be approximately \$51,845.

SOUTHERN PACIFIC.—In conjunction with the City of Palo Alto and State of California, under the Federal Grade Separation Program, a subway is being constructed at University avenue, Palo Alto, Cal. (described on page 981 of the *Railway Age* of December 23, 1939), which involves complete rearrangement of yard tracks, main lines, freight house, passenger platforms, driveways, and includes the construction of a new passenger station building with passenger subway, landscaping, etc. The total cost of work to be performed by the railroad is \$214,860, of which \$67,346 is recollectible. A contract amounting to approximately \$46,000 for the construction of the new passenger station and shelter has been awarded to Carl N. Swenson Company of San Jose, Cal. The station building will be of steel frame and concrete construction, finished on the exterior with brick veneer and textured concrete. The interior will be finished in plaster and stucco with hardwood trim and tile floors in the public rooms and with cement floors elsewhere.

INCREASE YOUR CAPACITY...

...TO HANDLE THE INCREASE IN CARLOADINGS



WITH

BOOSTER^{*} **POWER**

Carloadings are already on the rise and indications are that they will soon be much higher than they have been in years. To keep up with this rise, railroads will be forced to haul much heavier loads at higher speeds. » » » Progressive railroads are meeting this impending problem the quickest and most economical way . . . by installing Boosters on exist-

ing locomotives! By thus capitalizing idle weight and spare steam the locomotive will have added power to start heavier loads and take them over grades at higher speeds. » » » Booster power is quickly available. Give your locomotives this help against the time when car-loadings will tax your hauling capacity.

*Trade Mark Registered United States Patent Office



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

**NEW YORK
CHICAGO
MONTREAL**

Financial

ERIE.—*Purchase of Jamestown, N. Y., Terminal Facilities.*—Trustees of this road have asked the Interstate Commerce Commission to approve their purchase for \$200,000 of certain terminal properties of the Jamestown, Westfield & Northwestern at Jamestown, N. Y. The properties involved are now operated by the Erie under leases.

GULF, MOBILE & NORTHERN.—*Construction and Trackage Rights.*—The Interstate Commerce Commission, Division 4, has approved a plan whereby this road will construct 1.8 miles of line and operate under trackage rights over 0.29 mile of the Louisville & Nashville at Mobile, Ala., in order to provide direct and expedited freight service on materials required by the federal government in connection with the construction of the army's Southeast Air Depot.

IOWA ELECTRIC LIGHT & POWER COMPANY.—*Securities.*—This company, primarily in the public utility business but operator also of an electric railway between Cedar Rapids, Iowa, and Iowa City, has been authorized by the Interstate Commerce Commission, Division 4, to issue \$12,600,000 of first mortgage 3½ per cent bonds, series A, and \$1,980,000 of general-mortgage 3¼ per cent notes. The notes and bonds will be sold at par and accrued interest, and the proceeds used to redeem \$12,600,000 of outstanding mortgage bonds, to make additions and improvements to the applicant's electric utility properties, and to reimburse its treasury for expenditures made for capital purposes. Before acting upon the application the commission considered the question of its jurisdiction. In that connection, it said: "While the applicant is engaged primarily in the public utilities business, in view of its charter powers and its railway operating revenues, particularly freight revenues, which are substantial, it cannot be classed as a street, suburban, or interurban electric railway, and cannot be excluded from the operation of the provisions of section 20a on any other ground. It follows that we must assume jurisdiction over its security issues."

NORFOLK SOUTHERN.—*Abandonment.*—This company has been granted authority by Division 4 of the Interstate Commerce Commission to abandon parts of its Suffolk & Carolina division extending (a) from Suffolk, Va., to Edenton, N. C., 47.4 miles, and (b) from Beckford Junction, N. C., to Elizabeth City, 20.3 miles.

OUACHITA & NORTH WEST.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Clarks, La., to Gulf Crossing, 24 miles.

PACIFIC COAST.—*Note.*—Acting on this company's request, Division 4 of the Interstate Commerce Commission has dismissed its application for authority to issue its

secured promissory note for \$1,370,000, with interest, contingent upon earnings, at the rate of six per cent.

READING.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon the part of its East Norwegian branch extending northward from a point approximately 2.4 miles north of the junction of this line with its Mount Carbon branch to the end of the line, 0.3 mile, all in Schuylkill County, Pa.

READING.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon the part of its Lorberry extension branch extending in an easterly direction from a point approximately 5.7 miles north of Lorberry Junction, Pa., on the main line of the company's Lebanon and Tremont branch, to the end of the line, 1.5 miles.

RICHMOND TERMINAL.—*Sale of Bonds.*—Morgan Stanley & Co., Kuhn Loeb & Co. of New York, and associated dealers offered on August 6 a \$3,150,000 issue of 25-year first mortgage 3½ per cent bonds of this road, priced at 105. The bonds are guaranteed as to principal and interest by the Atlantic Coast Line and Richmond, Fredericksburg & Potomac and carry a 1 per cent sinking fund.

SOUTHERN.—*Notes of New Orleans & Northeastern.*—The New Orleans & Northeastern has applied to the Interstate Commerce Commission for authority to issue and sell \$1,000,000 of 4 per cent serial collateral notes, dated November 1, 1940, and due not later than November 1, 1945; also to procure the authentication and delivery of and to pledge as collateral for such notes \$1,371,000 of 4½ per cent refunding and improvement mortgage bonds, series A, dated January 2, 1917, and due January 1, 1952. The proceeds of the note sale would be used to provide part of the funds for the redemption of \$1,371,000 of 5 per cent prior lien bonds, due November 1. Treasury funds would take care of \$371,000 of the redemption transaction, and the result would be a reduction of the applicant's funded debt by the latter amount and an annual saving of \$28,550 in interest charges. After inviting bids on the issue the applicant has agreed, subject to I. C. C. approval, to sell the notes at par as follows: \$350,000 to the Southern; \$325,000 to the Alabama Great Southern; and \$325,000 to the Cincinnati, New Orleans & Texas Pacific.

TENNESSEE CENTRAL.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to issue \$200,000 of its first mortgage 4 per cent bonds, series A, and to pledge and re-pledge such bonds for notes that may be issued from time to time. The purpose of the note issues would be to reimburse the applicant's treasury for expenditures on road and equipment.

WESTERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission, Division 4, has authorized this road to abandon a

12.6-mile branch line extending from Calpine Junction, Calif., to Calpine.

Dividends Declared

BOSTON & ALBANY.—\$2.00, payable September 30 to holders of record August 31.
CANADIAN PACIFIC.—Preferred (interim), 2 per cent, payable October 1 to holders of record September 2.

DELAWARE & BOUND BROOK.—\$2.00, quarterly, payable August 20 to holders of record August 13.

Average Prices of Stocks and Bonds

	Aug. 20	Last week	Last year
Average price of 20 representative railway stocks..	28.20	27.98	27.83
Average price of 20 representative railway bonds..	56.50	57.16*	58.17

* Corrected figure.

Supply Trade

R. VOLBRECHT has been appointed to the New York merchandising sales staff of Cutler-Hammer, Inc.

The Aluminum Company of Canada, Ltd., has moved its Montreal (Que.) office to 1700 Sun Life building. The domestic sales and employment divisions remain at 1000 Dominion Square building.

ROBERT G. ALLEN, formerly sales manager of the Walworth Company, Greensburg, Pa., has been elected president and a director of the Duff-Norton Manufacturing Company, Pittsburgh, Pa.

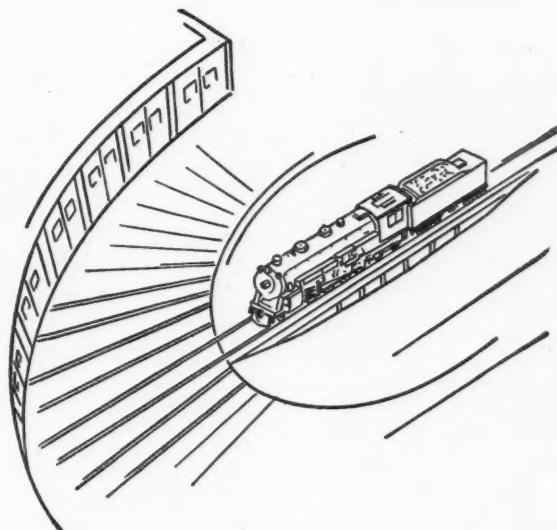
The Osmose Wood Preserving Company, Buffalo, N. Y., announces the opening of a branch office at 821 Ernst & Crammer building, Denver, Col., under the jurisdiction of **D. Kamphausen**. This new office will handle the company's business in the Rocky Mountain region.

CHARLES G. LEARNED, vice-president of the Okadee Company, and the Viloco Railway Equipment Company, Chicago, has also been placed in charge of sales of these companies and has been elected vice-president in charge of sales of the Viloco Machine Company, Benton Harbor, Mich., the manufacturing subsidiary, with headquarters in Chicago. **Curtiss W. Ploen**, mechanical engineer, has been elected vice-president in charge of manufacturing and engineering and **B. B. Rich**, treasurer, has been elected treasurer and comptroller of the same companies.

HOWARD M. HUBBARD has been elected president of the Greenfield Tap & Die Corp., with headquarters at Greenfield, Mass., succeeding **Donald G. Millar**, who has been elected chairman of the board, replacing **Colonel Frederick H. Payne**, who has resigned to join national defense work as chief of the Hartford (Conn.) Ordnance district. **Francis A. Smith**, vice-president and general manager, who has been associated with the firm in various executive capacities for over 20 years has resigned. Mr. Hubbard for the last 10 years has been secretary-treasurer and a director of the Harris-Seybold-Potter Company, manufacturers of offset printing presses and allied equipment. He has also been managing director of the company's Seybold division and of the Canadian Marketing division.

Continued on next left-hand page

SECURITY ARCH BRICK IS THE FOUNDATION of an effective economical brick arch



There's More to SECURITY ARCHES Than Just Brick

There is a lot to the Security Arch before it goes into the firebox.

Much of its success is due to the brick.

When we took up the development of the Security Sectional Arch we attacked the brick problem first.

Control of materials and proc-

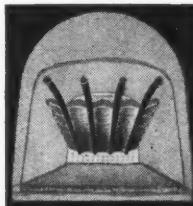
esses in every step in the manufacture is the foundation of arch brick performance.

Such brick cannot be made in every brick yard.

The Security Arch gives economical service.

The manufacture of the brick is one of the reasons.

**HARBISON-WALKER
REFRACTORIES CO.
*Refractory Specialists***



**AMERICAN ARCH CO.
INCORPORATED
*Locomotive Combustion
Specialists » » »***

Equipment and Supplies

LOCOMOTIVES

THE CHESAPEAKE & OHIO is inquiring for ten 2-6-6 type locomotives. September 16 has been set as the closing date for bids on this equipment.

FREIGHT CARS

THE UNION PACIFIC has ordered 100 70-ton cement cars from the General American Transportation Corporation.

THE LOUISIANA & ARKANSAS is inquiring for 50, 75 or 100 hopper cars of 70 tons' capacity.

THE LOUISVILLE & NASHVILLE has ordered 100 automobile cars from the Pullman-Standard Car Manufacturing Company.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 100 fifty-ton hopper cars from the Pullman-Standard Car Manufacturing Company.

THE CHARLESTON & WESTERN CAROLINA has ordered 35 fifty-ton hopper cars from the Pullman-Standard Car Manufacturing Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has been authorized by the district court to purchase 800 box cars, 200 automobile cars and 100 gondola cars at an approximate cost of \$3,090,000, and to rebuild 300 flat cars and remodel 100 coal cars in the company's shops at an estimated cost of \$263,000.

THE CHICAGO & NORTH WESTERN has ordered 60 70-ton covered hopper cars from the General American Transportation Corporation. During the remainder of 1940, 500 48-ft. drop end gondola cars and 500 40-ft. drop bottom gondola cars will be reconditioned in North Western's shops.

PASSENGER CARS

THE NATIONAL COUNCIL OF RAILWAYS OF COLUMBIA has ordered 22 Diesel-powered rail-motor cars and 13 trailer coaches from the American Car & Foundry Co.

IRON AND STEEL

THE GOVERNMENT OF VENEZUELA is reported to be contemplating the purchase of from 10,000 to 20,000 treated cross-ties for 3-ft. 6-in. gage for delivery this fall. Information may be obtained from the Minister of Public Works, Caracas, Venezuela.

MOTOR VEHICLES

THE SANTA FE TRAIL TRANSPORTATION COMPANY has received delivery of one 29-passenger, parlor-car type motor bus from The a. c. f. Motors Company.

Railway Officers

EXECUTIVES

Judson Zimmer, who has been appointed trustee of the Fonda, Johnstown & Gloversville at Gloversville, N. Y., was



Judson Zimmer

born on February 5, 1889, at Gloversville. Mr. Zimmer was graduated from Union College in 1910 with a C. E. degree. He entered railroad service on September 1, 1910, with the Fonda, Johnstown & Gloversville and served until 1913 as assistant engineer. From 1913 to 1918 Mr. Zimmer was master mechanic, and from 1918 to 1925, chief engineer. He served as general superintendent and chief engineer from 1925 until his appointment as trustee, effective July 23.

George H. Burnette, whose election to the presidency of the Cambria & Indiana, at Philadelphia, Pa., was reported in the *Railway Age* of August 10, was born on January 28, 1885, at Hartford, Trumbull County, Ohio. He attended Hartford High



George H. Burnette

School and was graduated from Ohio Northern University in 1905 with a C. E. degree. Mr. Burnette entered railroad

service as chairman with the Pittsburgh & Lake Erie, serving in this capacity during summer vacations of 1903 and 1904. From 1905 to 1931 he served with the Monongahela successively as inspector, transitman, draftsman, chief draftsman, assistant engineer, engineer, and chief engineer. Mr. Burnette was assistant chief engineer of the Pittsburgh & Lake Erie from 1931 until his recent election as president of the Cambria & Indiana, effective August 1.

B. F. Parsons, traffic manager of the Chicago Great Western, has been appointed assistant to the trustees, with headquarters as before at Chicago.

Clarence Percy, whose retirement as assistant to the vice-president on the Texas & Pacific, with headquarters at Dallas, Tex., was announced in the *Railway Age* of August 10, was born at Prescott, Ark., on February 1, 1886, and entered railway service in January, 1898, as a messenger boy on the Texas & Pacific at Baird, Tex. In 1899, he became a yard clerk and two years later he was appointed a telegrapher. Mr. Percy was promoted to train dispatcher in 1911, chief dispatcher in 1927 and trainmaster in 1928. In 1937, he was appointed special representative of the general manager, with headquarters at Dallas,



Clarence Percy

and the following year, he was promoted to assistant to the vice-president, the position he held until his retirement because of ill health on August 1.

William Henry Tobin, whose retirement as assistant vice-president on the Texas & Pacific, with headquarters at Dallas, Tex., was announced in the *Railway Age* of August 10, was born in Platte County, Mo., on March 1, 1865, and entered railway service in August, 1883, as a station helper on the Wabash at Plattsburg, Mo. (this line is now part of the Atchison, Topeka & Santa Fe). A year later he went with the Missouri-Kansas-Texas as a brakeman, later serving as a switchman, yardmaster and conductor. In June, 1896, he went with the Kansas City, Pittsburg & Gulf (now part of the Kansas City Southern) as a conductor, later being promoted to trainmaster. Mr. Tobin went with the Texas & Pacific in May, 1917, as assistant to the general manager.

Continued on next left-hand page



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During the war he served in France as captain of Company E of the 66th Engineers. Upon his return, he was appointed assistant general manager, with headquar-



William Henry Tobin

ters at Dallas, and in October, 1939, he was appointed assistant vice-president, the position he held until his retirement on August 1.

FINANCIAL, LEGAL AND ACCOUNTING

James L. Hetland, general solicitor of the Minneapolis, St. Paul & Sault Ste. Marie, has been promoted to general counsel, with headquarters as before at Minneapolis, Minn., succeeding **John L. Erdall**, whose death on June 30 was an-



James L. Hetland

nounced in the *Railway Age* of July 6. Mr. Hetland was born at Ada, Minn., on September 5, 1900, and graduated from the Law School of the University of Minnesota in 1924. After several months' service with the firms of Kingman, Cross, Morley & Cant and Rockwood & Mitchell, in Minneapolis, he entered railway service on October 14, 1924, as attorney for the Soo Line. On October 1, 1934, he was promoted to general attorney, and on September 1, 1937, he was advanced to assistant general solicitor. He was further advanced to general solicitor in December,

1938, the position he held at the time of his recent promotion.

OPERATING

C. R. Rice, assistant system examiner of the Southern Pacific, has been promoted to system examiner, with headquarters as before at San Francisco, Cal., succeeding **J. F. Miller**, who will retire on September 1.

Joseph M. Thompson, terminal superintendent, Canadian National, with headquarters at St. John, N. B., has been appointed superintendent of the Campbellton division, with headquarters at Campbellton, N. B., succeeding **J. E. Gibault**, whose appointment as assistant general manager was noted in the *Railway Age* of August 10. Mr. Thompson was born at Upper Sackville, N. B., and began his railway career as a porter at Amherst, N. S., on January 2, 1907. Four months later he was appointed brakeman at Moncton and on February 2, 1915, became yardman at St. John. In May, 1915, he was promoted to yard foreman and on May 8, 1919, yardmaster. Mr. Thompson became general yardmaster on December 1, 1920; terminal agent on February 1, 1927; and terminal superintendent on February 20, 1930.

Louis P. Hopkins, who has been promoted to superintendent of the Southern Pacific with headquarters at Ogden, Utah, as reported in the *Railway Age* of August 3, was born at Catasauqua, Pa., and entered railway service as a car repairer on the Southern Pacific at San Francisco on October 8, 1906. Subsequently until September, 1918, he was employed by the Southern Pacific at San Francisco as a stenographer, secretary to the superintendent, general clerk, acting secretary to the vice-president and general manager and general transportation clerk. In September, 1918, he was promoted to assistant trainmaster and in July, 1920, to night general yardmaster. From July, 1920, to April, 1922, he was supervisor of transportation of the Southern district at Los Angeles; from the latter date until August, 1923, trainmaster of the Salt Lake division at Carlin, Nev., from August, 1923, to April, 1925, operating representative for the Western Regional Express Operating Committee of the Association of Railway Executives, and from April, 1925, to May, 1935, trainmaster on the Coast division of the Southern Pacific at various points. In May, 1935, he was promoted to assistant superintendent of the San Joaquin division at Bakersfield, and from September, 1937, to July, 1939, held the same position at San Francisco. On the latter date he was appointed assistant to the general manager in charge of safety with headquarters at San Francisco, which position he has held until his recent promotion.

Howard R. Hughes, whose promotion to superintendent of the Tucson division of the Southern Pacific, with headquarters at Tucson, Ariz., was announced in the *Railway Age* of August 3, was born at Williamsport, Pa., on September 19, 1892. He attended Dickinson Seminary at Wil-

liamsport, graduating in a commercial course, and in July, 1912, he entered railway service as a stenographer and clerk on the Pennsylvania at Renova, Pa. In



Howard R. Hughes

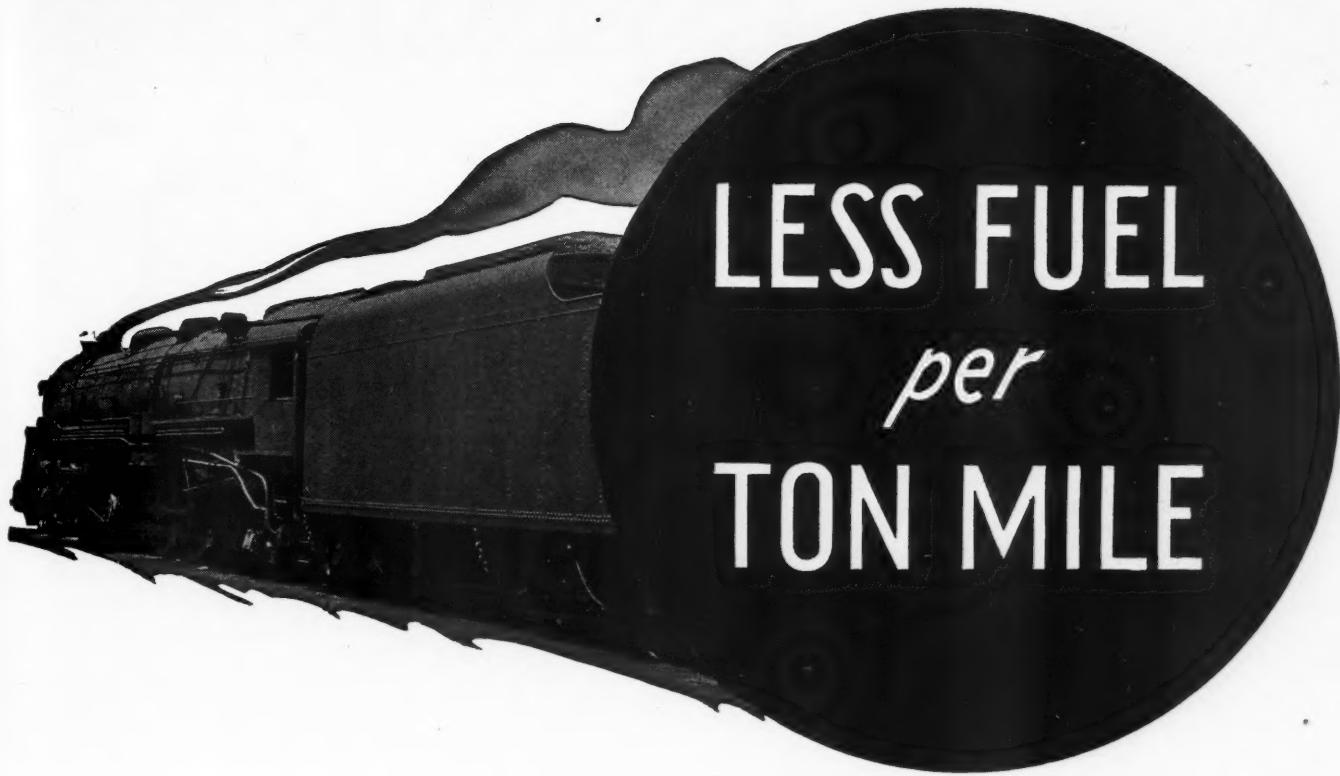
March, 1913, he went with the Southern Pacific as a stenographer at Sacramento, Cal., later serving at various points as secretary to the superintendent, trainmasters clerk, chief yard clerk and assistant chief clerk to the superintendent. In October, 1917, he was appointed transportation inspector and clerk in the office of the superintendent of transportation at San Francisco, Cal., and a year later he was appointed secretary to the assistant general manager at Los Angeles, Cal. In July, 1919, he was promoted to supervisor of transportation at Los Angeles, and in April, 1920, he was appointed chief clerk to the assistant general manager at that point. Mr. Hughes was promoted to trainmaster at Indio, Cal., in October, 1921, later serving at Los Angeles and Watsonville, Cal. In September, 1933, he was advanced to assistant superintendent of the Coast division, with headquarters at San Francisco, Cal., and in September, 1937, he was appointed assistant to the general manager, with the same headquarters, the position he held until his recent promotion, which was effective August 1.

TRAFFIC

Howard L. Hale, has been appointed general agent for the St. Louis-San Francisco at Houston, Tex., succeeding **J. T. Freeman**, who has been appointed special representative at that address.

J. W. Bateman, traffic representative on the Missouri Pacific at Ft. Worth, Tex., has been promoted to general agent at Winston-Salem, N. C., succeeding **R. T. Oliver**, who has been transferred to Cincinnati, Ohio. Mr. Oliver replaces **R. G. Haines**, who has been transferred to Sioux City, Iowa, relieving **W. W. Trimble**, who has been transferred to Milwaukee, Wis., succeeding **F. H. Donahue**, who retired on August 1.

W. R. Eastman, general passenger agent of the Grand Trunk-Canadian National, with headquarters at Chicago, retired on August 15. Mr. Eastman was born in Hartland, Vt., and graduated from Dartmouth College in 1899. He entered



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railway service the same year as a station helper on the Central Vermont at Brattleboro, Vt., later becoming a clerk at Montville, Vt., and freight billing clerk at St. Albans, Vt. Mr. Eastman was then appointed successively traveling passenger agent, and general agent, passenger department, for the Grand Trunk-Central Vermont at Boston, Mass. In April, 1923, he was transferred to Chicago as assistant general passenger agent for the Canadian National, and in 1930 he was promoted to general passenger agent, the position he held until his retirement.

Elmer Burnett Lawrence, whose appointment as assistant freight traffic manager of the Atlantic Coast Line, with headquarters at Jacksonville, Fla., was announced in the *Railway Age* of June 22, was born on April 3, 1896, at Richmond, Va. He entered the service of the Atlantic Coast Line as bill clerk in the local freight office at Richmond on November 5, 1909, becoming chief clerk to assistant general freight agent, at Richmond, on May 1, 1920, and soliciting freight agent at Norfolk, Va., on December 1, 1921. Mr. Lawrence was appointed chief clerk, freight traffic department at Wilmington, N. C., on February 1, 1925, and on April 1, 1927, became commercial agent at Wilmington. He was transferred to Sanford, Fla., on March 27, 1929, and was appointed superintendent of mine service at Mulberry, Fla., on November 1, 1930. On September 1, 1934, Mr. Lawrence returned to Wilmington as assistant to freight traffic manager. On November 1, 1937, he went to New York as general eastern freight agent, which position he held until June 15, when he became assistant freight traffic manager at Jacksonville.

B. R. Harris, general freight agent of the Chicago Great Western, with headquarters at Chicago, has been promoted to general traffic manager, a newly created position, with the same headquarters. **R. G. Hawkinson**, assistant to the traffic manager at Chicago, has been advanced to freight traffic manager, with the same headquarters, also a newly created position. **F. P. Wagner**, general agent at Los Angeles, Cal., has been promoted to traffic manager, with headquarters at Chicago, and **J. H. McWalters**, division freight and passenger agent at Mason City, Iowa, has been advanced to traffic manager at Chicago. **E. J. Forster**, assistant general freight agent at Chicago, has been promoted to general freight agent, with the same headquarters. **H. O. Malm** and **B. B. Onstott** have been appointed assistant general freight agents at Chicago, and **H. P. Riccadonna** has been appointed assistant to the general traffic manager at that point. The above appointments are effective September 1.

Albert W. Aylin, foreign freight traffic manager of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to the newly created position of assistant traffic manager with headquarters at New Orleans, La. He was born at Hathern, England, on February 8, 1890, and entered the employ of the Wabash in May, 1906. In October, 1909, he resigned to become secretary to the general west-

ern agent of the Missouri Pacific at San Francisco, Cal., which position he held until April, 1911, when he became assistant chief clerk to the freight traffic manager at St. Louis. From November, 1911, to June, 1923, he served as chief clerk to the general freight agent at Little Rock, Ark.; from the latter date until June, 1924, as division freight agent at that point; from June, 1924, to November 1932, as assistant general freight agent at Little Rock and from the latter date until November, 1935, as assistant general freight agent at New Orleans. On the latter date he was promoted to general freight agent at Houston, Tex., and in November of the following year was transferred to St. Louis. In December, 1937, he was advanced to foreign freight traffic manager at this point.

Morton B. Duggan, who has been appointed chairman of the Southern Passenger Association, with headquarters in Atlanta, Ga., as reported in the *Railway Age* of August 17, was born at Sevierville, Tenn., and graduated from Maryville (Tenn.) College. He entered the employ of the Detroit United Railways as clerk-cashier in 1914, and later became a rate clerk for the Detroit, Toledo and Ironton, with which company he remained until



Morton B. Duggan

1921. In 1917-18 he was a rate clerk in the Depot Quartermaster Corps at Washington. For a short period in 1921 he was chief rate clerk for the Lake Erie & Western at Indianapolis, Ind., and later in the same year he entered the service of the Illinois Central at Chicago as rate clerk. Mr. Duggan was made chief rate expert on April 16, 1932, which position he has held up to his present appointment.

ENGINEERING AND SIGNALING

Tom W. Brown, roadmaster on the Chicago, Rock Island & Pacific, with headquarters at Des Moines, Iowa, has been promoted to district maintenance engineer, with the same headquarters, succeeding **W. E. Heimerdinger**, whose promotion to superintendent, with headquarters at Ft. Worth, Tex., was announced in the *Railway Age* of August 10.

Floyd R. Smith, whose appointment as engineer of bridges of the Union Railroad at East Pittsburgh, Pa., was noted in the

Railway Age of August 3, was born on August 15, 1902, at Joliet, Ill. Mr. Smith attended the public schools of that city and



Floyd R. Smith

was graduated from Carnegie Institute of Technology with a Bachelor of Science degree. He entered railroad service on July 1, 1922, with the Elgin, Joliet & Eastern and served as rodman on maintenance work until February, 1923, when he became instrumentman on construction work. In April, 1928, he became assistant engineer in the valuation department, analyzing construction contracts for cost data purposes, serving in that capacity until February 1, 1930, when he went with the Union Railroad as assistant engineer. Mr. Smith served in the latter capacity until November, 1937, when he was appointed chief draftsman, the position he held until his recent appointment as engineer of bridges. Mr. Smith is a registered engineer in the Commonwealth of Pennsylvania and a member of the National Society of Professional Engineers.

W. R. Armstrong, Jr., supervisor of maintenance of the Nevada Northern, with headquarters at East Ely, Nev., has been promoted to chief engineer, with the same headquarters and the position of supervisor of maintenance has been abolished.

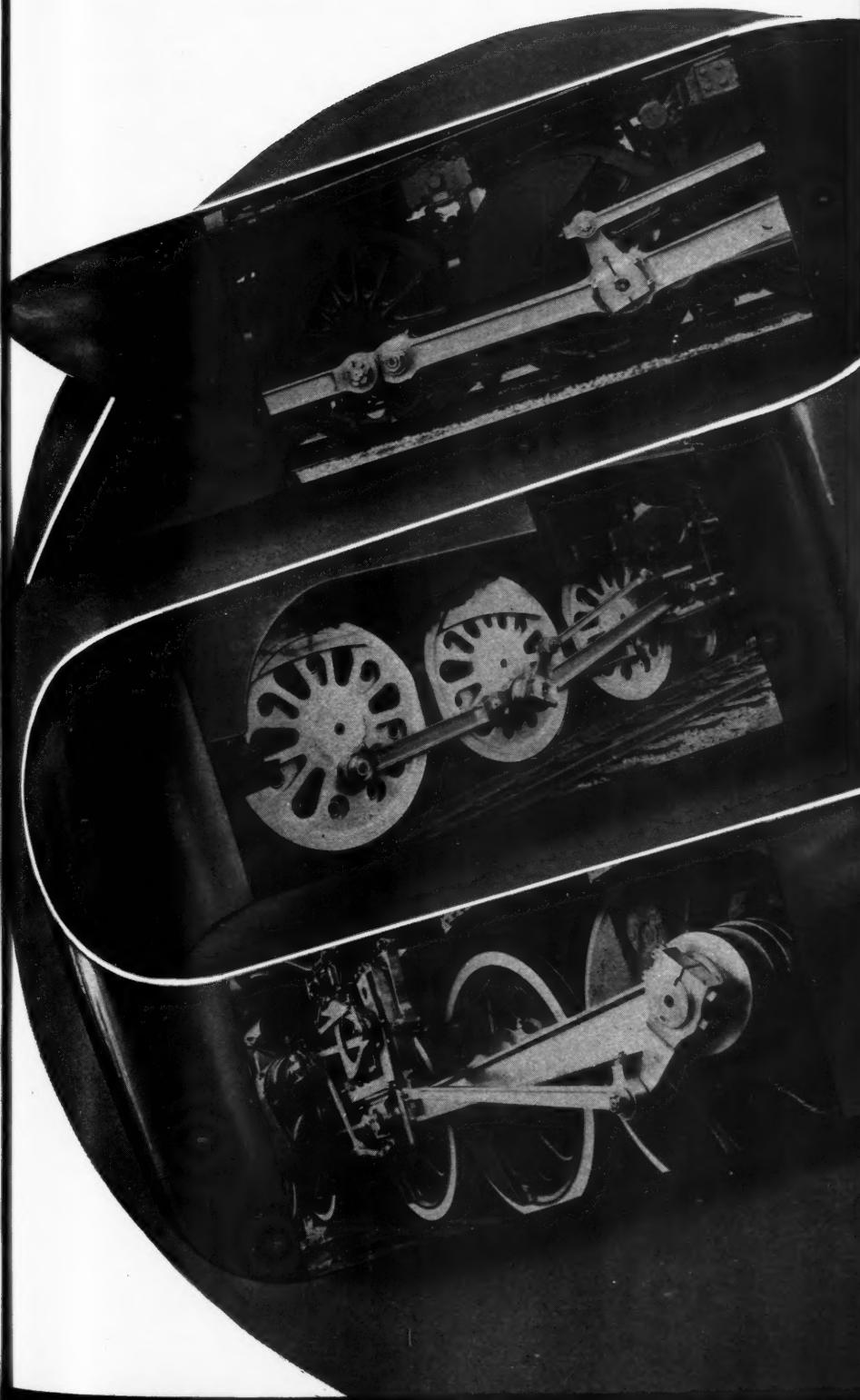
MECHANICAL

T. L. Preun, assistant master mechanic of the Philadelphia division of the Pennsylvania, with headquarters at Harrisburg, Pa., has been appointed master mechanic of the Northern division. **Paul Thomas**, assistant master mechanic of the Panhandle division, with headquarters at Mingo Junction, Ohio, has been transferred to the Philadelphia division.

OBITUARY

Charles Augustus Kline, retired assistant passenger traffic manager of the Southern, died on August 13 at his home in Washington, D. C. Mr. Kline was born on January 2, 1865, at Chillicothe, Ohio, and entered railway service in 1890. He went with the Southern at Washington, D. C., on August 21, 1897, as rate and division clerk in the passenger traffic department and was promoted consecutively

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to chief rate clerk, chief clerk, assistant general passenger, and on July 15, 1926, was appointed assistant passenger traffic manager, in which capacity he served until November, 1937, when he was retired.

Charles E. Miller, general attorney of the Central of New Jersey and the New York & Long Branch, with headquarters at New York, died on August 17 at his home in Briarcliff Manor, N. Y., at the age of 54. Mr. Miller was born at Jersey City, N. J., on July 21, 1886, and attended the public schools of that city, Hasbrouck Institute, Columbia University and New York Law School. He entered railroad service on February 1, 1908, as attorney for the Central of New Jersey and from June 1 to December 12, 1917, served as assistant general counsel. From December 12, 1917 to June 12, 1918, Mr. Miller served with the United States Engineering

Corps as sergeant major, second lieutenant and first lieutenant. He was attorney for the United States Railroad Administration from June 13, 1918, to March 1, 1920, when he became assistant general counsel for the Central of New Jersey. Mr. Miller was appointed general attorney of the Central of New Jersey on January 1, 1924, the position he held until his death.

Harry Oscar Hartzell, executive assistant to vice-president in charge of freight traffic, mail and express and commercial development departments, Baltimore & Ohio, died at his home in Baltimore, Md., on August 21. Mr. Hartzell was born in Baltimore on August 11, 1875, and was educated in the public schools of that city and City College. He entered railway service in a clerical capacity with the Western Maryland and on December 1, 1896, became secretary to as-

sistant general freight agent of the Baltimore & Ohio at Baltimore. On September 1, 1898, he was promoted to contracting freight agent at Baltimore and was appointed traveling freight agent on May 1, 1905. On February 1, 1907, he was appointed assistant chief clerk in the general freight department, where he remained until November 1, 1910, when he was promoted to industrial agent at Pittsburgh. Mr. Hartzell was promoted to assistant general industrial agent on October 1, 1912, and chief of the Industrial Bureau in September, 1918. He was appointed agricultural and industrial agent in October, 1918, and became manager, Commercial Development department, on March 1, 1920. On November 1, 1925, he was appointed executive assistant to vice-president in charge of freight traffic, mail and express and commercial development departments.

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 133 Monthly Reports of Revenues and Expenses Representing 137 Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF JUNE, 1940 AND 1939

Item	United States		Eastern District		Southern District		Western District	
	1940	1939	1940	1939	1940	1939	1940	1939
Miles of road operated at close of month	232,786	233,399	57,367	57,556	44,343	44,469	131,076	131,374
Revenues:								
Freight	\$280,659,838	\$255,763,196	\$120,862,703	\$101,350,986	\$55,534,796	\$51,834,248	\$104,262,339	\$102,577,962
Passenger	35,936,132	38,436,019	19,497,464	21,199,712	4,149,332	3,961,255	12,289,336	13,275,052
Mail	8,081,122	7,953,174	3,074,890	3,041,509	1,348,739	1,361,254	3,657,493	3,550,411
Express	4,338,917	5,073,509	2,175,511	2,170,710	659,886	882,734	1,503,520	2,020,065
All other operating revenues	15,796,797	14,390,837	7,756,939	6,799,521	1,796,828	1,651,458	6,243,030	5,939,858
Railway operating revenues	344,812,806	321,616,735	153,367,507	134,562,438	63,489,581	59,690,949	127,955,718	127,363,348
Expenses:								
Maintenance of way and structures	45,305,125	44,379,672	17,068,668	15,443,105	7,694,874	7,133,912	20,541,583	21,802,655
Maintenance of equipment	65,848,169	61,852,394	29,542,342	26,471,568	12,864,862	11,927,850	23,440,965	23,452,976
Traffic	9,310,523	9,156,144	3,432,817	3,324,729	1,736,952	1,687,112	4,140,754	4,144,303
Transportation—Rail line	117,538,613	112,506,800	54,065,494	49,980,254	19,561,434	18,650,590	43,911,685	43,875,956
Transportation—Water line	562,393	408,380	.....	.....	.....	.....	562,393	408,380
Miscellaneous operations	3,197,812	3,209,757	1,399,893	1,363,479	366,879	300,609	1,431,040	1,545,669
General	11,121,344	10,726,008	4,612,081	4,235,513	2,147,884	2,067,487	4,361,379	4,423,008
Transportation for investment—Cr. Railway operating expenses	422,251	453,497	39,913	56,749	94,338	88,428	288,000	308,320
Railway operating expenses	252,461,728	241,785,658	110,081,382	100,761,899	44,278,547	41,679,132	98,101,799	99,344,627
Net revenue from railway operations	92,351,078	79,831,077	43,286,125	33,800,539	19,211,034	18,011,817	29,853,919	28,018,721
Railway tax accruals	34,177,427	29,498,145	14,948,768	12,660,196	7,550,516	6,033,047	11,678,143	10,804,902
Railway operating income	58,173,651	50,332,932	28,337,357	21,140,343	11,600,518	11,978,770	18,175,776	17,213,819
Equipment rents—Dr. balance	7,814,409	8,192,485	4,058,879	3,434,304	165,234	711,706	3,590,296	4,046,475
Joint facility rent—Dr. balance	2,939,802	2,973,659	1,611,620	1,516,843	360,994	377,997	967,188	1,078,819
Net railway operating income	47,419,440	39,166,788	22,666,858	16,189,196	11,134,290	10,889,067	13,618,292	12,088,525
Ratio of expenses to revenues (per cent)	73.2	75.2	71.8	74.9	69.7	69.8	76.7	78.0
Depreciation included in operating expenses	17,142,753	16,805,486	7,444,572	7,361,009	3,454,921	3,326,299	6,243,260	6,118,178
Pay roll taxes	9,468,305	8,737,417	4,130,733	3,676,255	1,652,416	1,517,353	3,685,156	3,543,809
All other taxes	24,709,122	20,760,728	10,818,035	8,983,941	5,898,100	4,515,694	7,992,987	7,261,093

FOR SIX MONTHS ENDED WITH JUNE, 1940 AND 1939

Miles of road operated at close of month*	232,937	233,605	57,387	57,602	44,353	44,488	131,197	131,515
Revenues:								
Freight	\$1,637,997,724	\$1,453,092,196	\$703,698,865	\$603,969,091	\$342,548,425	\$293,756,112	\$591,750,434	\$555,366,993
Passenger	196,919,318	198,208,395	106,686,618	109,807,386	31,488,081	28,495,426	58,744,619	59,905,583
Mail	48,882,790	47,975,880	18,674,517	18,419,108	8,437,882	8,352,237	21,700,391	21,204,535
Express	26,993,305	27,859,806	11,044,116	10,805,360	5,852,147	6,774,820	10,097,042	10,279,626
All other operating revenues	84,803,498	76,990,280	42,131,023	37,851,025	11,146,471	10,059,771	31,526,004	29,079,484
Railway operating revenues	1,995,596,635	1,804,126,557	882,235,139	780,851,970	399,473,006	347,438,366	713,888,490	675,832,221
Expenses:								
Maintenance of way and structures	232,643,285	219,313,478	89,316,088	82,299,428	44,760,435	40,213,073	98,566,762	96,800,977
Maintenance of equipment	397,126,782	366,226,352	176,868,681	157,229,215	79,442,177	70,307,291	140,815,924	138,689,846
Traffic	54,151,352	52,913,426	19,459,238	19,022,471	10,479,917	10,056,575	24,212,197	23,834,380
Transportation—Rail line	727,578,300	679,273,977	335,072,245	305,878,624	126,783,786	115,914,325	265,722,269	257,481,028
Transportation—Water line	3,248,759	2,405,910	8,333,218	7,776,046	3,012,748	2,549,220	3,248,759	2,405,910
Miscellaneous operations	18,954,216	18,009,760	8,333,218	7,776,046	3,012,748	2,549,220	7,608,250	7,684,494
General	65,674,006	64,305,163	26,300,714	25,602,224	12,655,966	12,193,161	26,717,326	26,509,778
Transportation for investment—Cr. Railway operating expenses	1,840,618	1,703,903	305,316	151,980	385,298	331,113	1,150,004	1,220,810
Railway operating expenses	1,497,536,082	1,400,744,163	655,044,868	597,656,028	276,749,731	250,902,532	565,741,483	552,185,603
Net revenue from railway operations	498,060,553	403,382,394	227,190,271	183,195,942	122,723,275	96,535,834	148,147,007	123,650,618
Railway tax accruals	190,884,222	172,109,281	82,123,337	73,674,505	42,511,300	34,771,932	66,249,585	63,662,844
Railway operating income	307,176,331	231,273,113	145,066,934	109,521,437	80,211,975	61,763,902	81,897,422	59,987,774
Equipment rents—Dr. balance	48,243,233	47,991,609	23,172,945	20,572,353	2,851,599	4,538,198	22,218,689	22,881,058
Joint facility rent—Dr. balance	16,566,264	17,658,285	9,277,473	9,549,602	1,591,817	2,005,392	5,696,974	6,103,291
Net railway operating income	242,366,834	165,623,219	112,616,516	79,399,482	75,768,559	55,220,312	53,981,759	31,003,425
Ratio of expenses to revenues (per cent)	75.0	77.6	74.2	76.5	69.3	72.2	79.2	81.7
Depreciation included in operating expenses	102,054,700	100,949,683	44,288,484	44,112,414	20,643,049	19,958,413	37,123,167	36,878,856
Pay roll taxes	56,346,584	50,726,359	24,762,768	21,662,372	10,264,927	9,040,097	21,318,889	20,023,890
All other taxes	134,537,638	121,382,922	57,360,569	52,012,133	32,246,373	25,731,835	44,930,696	43,638,954

* Represents an average of the mileage reported at the close of each month within the period.
Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.